

JOURNAL *of* FARM ECONOMICS

Annual Meeting, Green Lake, Wisc. Sept. 13-16, 1948.

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THE AMERICAN FARM ECONOMIC ASSOCIATION

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Price: \$5 per year, this issue \$1.25

Entered as second class matter at the post office at Menasha, Wis. Acceptance for mailing at a special rate of postage provided for in the Act of February 28, 1925, paragraph 4, section 412, P. L. & R., authorized November, 27, 1931.

JOURNAL OF FARM ECONOMICS

VOL. XXX

May, 1948

No. 2

ELEMENTARY MODELS IN FARM PRODUCTION ECONOMICS RESEARCH*

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RESEARCH in the economics of farm production has a longer history than has any other specialization in agricultural economics. Accordingly, the objectives, the analytical tools and the research methodology should be more highly developed and the findings should provide a greater basis for action in this than in many other sectors of applied economics. These points have been discussed in various degrees of detail over the past three decades. This paper is pointed in the same direction. In terms of economic and statistical analysis it is extremely but purposively elementary. It reviews the analytical setting of farm production economics research, outlines the role of this investigation in the overall structure of economic research, and attempts to reconcile some apparent divergences in objectives. Finally it sets forth some fundamental problems relating to the economics of farm production and questions, on the basis of elementary criteria which are commonly accepted, the extent to which some traditional research techniques provide the basis for action in bettering the administration of farm resources within these specific problem areas.

This paper is prompted by the uneasiness which evidently fills the minds of many as to what research in the economics of farm production can, does, or should accomplish. The thesis behind it is that advancement in a scientific field grows not out of unqualified acceptance of the status quo but by frequent appraisal of the road ahead. Scholars who are interested in furthering the accomplish-

* Journal Paper No. J-1555 of the Iowa Agricultural Experiment Station, Ames, Iowa, Project No. 976. Suggestions of numerous associates, especially those of Virgil Hurlburt and Ross Baumann, have been helpful in formulating this paper.

ments of farm production economics research welcome studies which delve into the theory or analytical tools, methods of empirical analysis, and applied problems. All are needed in a maturing science.

Analytical Setting

As an applied field of investigation farm management parallels that sector of economic theory dealing with the economics of the firm or the principles of production. This delineation of the field has been explicitly expressed at various times in the past decades. Early definitions such as those of G. F. Warren¹ and Boss² although couched in terms of the application of business principles to and the maximization of farm returns over time spelled out a similar analytical setting. The rational use of resources and the maximization of returns is, of course, the very core of the economics of production or the theory of the firm. It sets forth the necessary conditions for the most efficient use of resources or the maximization of profits. Some few reject the idea that any relationship exists between farm management and the principles or theory of production. It is difficult to understand why this should be so. There are few if any agricultural economists who question that supply and demand determine prices in a competitive market or that this concept is of value as an analytical tool. Yet the conditions which are given as necessary for profit maximization are as commonly and widely accepted in economics as is the law of supply and demand. Furthermore, these necessary conditions are as exact in the sense of mathematical proof as the law of supply and demand, and empirical verification is perhaps even more readily possible.

The principles of production provide both simple and complex models in farm management economics which serve as the fundamental hypotheses of research and furnish the schematic framework for establishing the appropriate empirical analysis (the nature of the data needed in answering problems, the sample or experimental design, and the appropriate statistical analysis) in solving specific problems. It is true that not all economic models have been developed to a point where they are relevant or can be readily integrated with empirical investigations. However, a number of those relating to the economics of production are both simple, obvious, and time-established. It is because even these extremely elemen-

¹ G. F. Warren, *Farm Management*, Preface.

² Andrew Boss, *Farm Management*.

tary tools sometimes go unrecognized in the design and analyses of research studies that the findings have little value in the sense that they provide figures and data which can be put into direct use in the management of farm resources.

The objectives of research relating to the economics of farm production have also been given somewhat different connotations down through time. Early workers emphasized entirely the individual farm aspect of research. However, farm management research has generally been given a broader base over the past two decades. Johnson,³ Wilcox,⁴ the American Farm Economics Association committee,⁵ the Social Science Research Council Committee⁶ and others have suggested multiple objectives along these lines; (1) to provide guidance to individual farmers in the efficient combination of their resources, (2) to analyze the impact of public and private programs and policies on the use of farm resources and (3) to design programs of adjustment for farming areas. Similarly, S. Warren⁷ has suggested the dual objectives of guiding the individual entrepreneur and of acquiring a broader understanding of the agricultural industry.

The individual farm and broader industry or social objectives are sometimes looked upon as incongruous. They are not however. Both channel to the same end in respect to resource efficiency. And in neither case does it make sense to divorce completely the one consideration from the other. Agriculture as a competitive industry provides an environment in which the best use of resources by the individual firm can result in the most efficient use of resources from the standpoint of society with the exceptions noted.⁸ Elementary equilibrium analysis suggests that under competitive conditions a

³ Sherman E. Johnson, "Recent Trends in Farm Management," mimeographed, March, 1941.

⁴ W. W. Wilcox, "Research in Economics of Farm Production," this JOURNAL, Aug., 1947.

⁵ Report of Committee on Farm Management Terminology, this JOURNAL, Feb., 1941.

⁶ W. W. Wilcox, S. W. Warren, and S. E. Johnson, Social Science Research Council Bulletin 52, *Farm Management Research*, 1940-41.

⁷ S. W. Warren, "Statistical Analysis in Farm Management Research," this JOURNAL, Feb., 1936.

⁸ The ends of the individual farmer and of society in respect to use of resources conflict mainly because of divergences in costs and returns. These divergences grow largely out of 1. uncertainty and other imperfections of the market, and 2. leasing arrangements and other institutional factors. Too, there are some segments of agriculture which are not competitive in the sense that an equilibrium of the firm coincides with the most efficient use of society's resources. Other exceptions are pointed out elsewhere. However, within the limits of these conditional forces, more efficient combinations of resources on individual farms augment the social net product.

maximum social product can be forthcoming (with a given pattern of personal income) only if consumers maximize their satisfactions, business firms maximize profits, and owners of resources maximize their incomes. Theoretically, a perfect use of resources within firms, (scale of operations and combination of resources and products) would automatically bring about an optimum use between firms and industries. Likewise an attack on the resource efficiency front which brought about perfect allocations between industries would largely necessitate the optimum within-firm positions. The conditions necessary for maximization of profits by the individual business in a competitive environment are also those necessary for an optimum use of society's resources.⁹ The pricing and profits system becomes a common vehicle through which these two entities can arrive at mutually consistent solutions.

Some still insist that the sole objective of research is to help the individual farmer "make more profit." However, the ultimate objectives of their research are obviously more deeply rooted. This single avowed objective is untenable on the basis of research in the past. Inherent in past investigations has been the objective of "helping farmers maximize profits in a manner consistent with the most efficient use of resources from the standpoint of society." Had the sole objective been that of helping farmers make more profits (consideration of social welfare excluded) additional alternatives might have been exploited. Farmers might have been shown how and when to form monopolies while curtailing production in cases of inelastic demands; to employ price discrimination between different groups of consumers and to obtain higher protective tariffs and similar devices in instances where individual producer groups might benefit. These are all means which may be employed if the goal were solely that of helping the individual firm maximize returns. And some are obviously more remunerative than the extension of certain simple farm practices. Yet farm management workers have directed efforts in the opposite direction. This is sufficient evidence that even those who have given the farm defini-

⁹ There are, of course, numerous qualifications which must be made for this statement. It is recognized that there are certain segments of agriculture which can not be categorized purely and simply as competitive; that the pricing mechanism is not perfect as an allocator of resources and that institutional and other forces have a heavy impact on the efficiency with which farm resources are allocated. These provide a challenge in economic research, however, to fashion means by which the interests of the individual can be made compatible with the interests of society in the use of resources.

tion have been, perhaps unwittingly, concerned with at least one welfare objective. Hence, the objectives of farm management research might well be restated in the following manner which reconciles the historic direction of research, all previously stated objectives, and present-day needs. *Farm Management research relates to the study of the economic efficiency and productivity of farm resources. Its specific objectives are (1) to guide individual farmers in the best use of their resources and in a manner compatible with the welfare of society and (2) to provide fundamental analyses of the efficiency of farm resource combinations which can serve as a basis for bettering the public administration of resources where agricultural policy or institutions which condition production efficiency are concerned.*

So defined, the economics of farm production has an important role to play in the overall analysis of agriculture. Equilibrium in respect to resource efficiency requires that an optimum allocation of resources (equation of marginal value productivities) exist within firms, between firms and between industries. Farm management research can accomplish much (but obviously not all) in facilitating these necessary conditions. As long as any vestige of a pricing system is retained as an allocator of resources on the part of the consuming economy, research which relays the relative productivity of resources to farm operators and increases the mobility of resources is indeed important. Further, the field of investigation occupies an important pivotal position in the economics of agriculture. Policies, customs, and institutions which condition production efficiency all thread through the individual firm at some point. Accordingly, most have a production economics aspect. The goal of helping farmers make more money is an important and primary objective. But there is also a large need or market for other types of analysis which farm management research is well adapted to perform. It is a basic source for data required in the efficient management of resources either by the individual or by the public.¹⁰

¹⁰ Differentiation is sometimes made between farm management and the economics of farm production: The former is taken as embracing the individual firm and the latter as embracing the industry aspects of farm production as well as certain policy implications. Aside from the very real limitation of individual capacities there is little academic justification in drawing this fine line between the study of the tree and the forest. The two are entirely complementary. There are many examples for which a study based on a sample of farms will lead to erroneous conclusions if the population outcome is disregarded. It may be true, for example, that if a fraction of the total number of farms adopt an output-increasing technique their incomes will be increased. But should the majority of the population adopt the technique, and if, as the market specialists indicate, the demand for the product in ques-

Thus far we have attempted to reconcile some of the apparent conflicts in objectives. The gap is nowhere nearly as wide as is sometimes imagined. Regardless of the front from which resource efficiency is attacked, all concerned are working toward a common goal. More important than the specific area of concentration is the recognition of interrelationships between the various problem levels and that real accomplishment is attained in each.

Problem Concepts

Objectives of farm production economics research are inherently and inseparably two-fold. However, because of the limited scope of a single paper we now turn to examination of some traditional research procedures which have first impact in solving the production problems of individual farmers. An important portion of the resources devoted to farm management research have focused on the producing unit. What are the fundamental problems facing this unit? What are the analytical tools and models which furnish the hypotheses about the type of information, design of sample and statistical analysis necessary if concrete data *which farmers can use* is to be provided? How well has farm management research been able to "solve" these problems? These are listed after some elementary but useful concepts and steps in research are outlined. Unless problems, hypotheses and solutions are formulated in some orderly fashion, the research worker is likely to become lost in the throes of collecting figures.

Scientific research should be a problem-solving activity. It is not

tion is inelastic, farm incomes will eventually be lowered. One may isolate a few farms and study the returns from their adoption of complete soil conservation plans. The returns may appear positive on the basis of the sample study. Yet it may be true that were all farms in the area to produce additional roughage, bid for more cattle as roughage consuming livestock or produce more dairy products the structure of market prices might be altered to change incomes in the opposite direction. Frequently, individual operators cannot adopt recommendations growing out of research unless changes are brought about in the structure of the industry or agricultural region. With a given supply of resources such as land (and land products) individuals can expand their operations (a common recommendation of farm management studies) only if others contract the scale of operations or abandon farming and move into other occupations. Conversely, applied phases of certain broad problem can best be studied through the individual farm. Certainly there is need for linking the firm and aggregate aspects of production efficiency to a greater extent than has held in the past. The research worker is not without public responsibility. Unlike the commercial farm manager or corporation executive, he is not hired from the accounts of the individual resource owner. Instead, as a member of that socially financed institution, the agricultural experiment station, he is charged with extending the welfare of society in general and individual farmers specifically as a means to this end.

mere compilation of figures. Some fundamental steps in problem solving are these: (1) Formulation of models and criteria which establish the ideal or practical optimum—the conditions which must hold if the given end is to be fully attained. It is this model which provides the theoretical solution and serves as the a priori hypothesis for establishing quantitative relationships with data which can be identified and measured. (2) Determining the extent and the reasons why the existing state deviates from the ideal or practical optimum. (This includes evaluation of the existing state on the basis of the criteria appropriate for the given objective.) (3) Establishing the appropriate means and providing the concrete quantitative data which serve as the basis of action in getting from the “existing” to the “optimum.” In other words, scientific research must explain “how far to go” and “how to get there.” And at some point it must “provide the figures” which make quantitative solution possible.

Research in the economics of farm production relates to the end of efficiency in the use of farm resources.¹¹ Accordingly, a “problem” exists in any case where the resources of individual farms (and consequently those of society) are being used inefficiently—when-ever a gap occurs between the existing use of resources and the optimum (which may be established quantitatively, theoretically or otherwise). This is the fundamental problem area of production economics research. However, in the next section, the production problems of individual farmers have been presented in a somewhat different vein for obvious reasons.

Problems to be Solved in Production

Since farm management has been aimed at solving the “problems” of individual farms as business units, we have classified the specific problems of production below. We are interested in the extent to which some traditional procedures “solve” these specific “problems” for farmers. This categorization of the “problems” is perhaps unorthodox. The “problems” and the “problem solving

¹¹ Resource efficiency is only one problem relating to economic welfare. Others include equity in the distribution of income, stability, and security in the economic system, individual choice and economic progress. Several of these are closely allied or are mutually interdependent. It is possible that resource efficiency or its aspect of other welfare goals (as economic progress) might be submerged within limits in favor of still other goals. Even then it is necessary to know the loss in efficiency before social evaluation can be made of extending other objectives or in selecting between alternative means to other ends.

tools" might be presented more concisely in the vein of modern economic terminology.¹² However, in keeping with the nature of this paper they are presented in the sense of the very simplest production system. The following classification has also been employed partly since the problems emerge and must be solved in somewhat this very context in the ebb and flow of everyday life but mainly because certain traditional research procedures partially follow this classification. In the long run numerous of these merge and are identical. However, in the short run they are often separable, and direct solution requires their segregation. Obviously, all are encompassed by the last. In each case the economic concepts which provide the theoretical answer or the hypothesis about the nature and kind of data and the design of the sample appropriate if the problem is to be answered are included (in parentheses).

(1) The level of output to be attained from (or the rate of input applied to) fixed or specialized resources. (Diminishing returns and equation of marginal (additional) cost and revenue.)

(2) The combination of resources to produce a given output of product. (Marginal rates of factor substitution, product contours and equation of productivities and costs of resources.)

(3) The combination of enterprises within a given time period. (Marginal rates of transformation, equation of marginal returns in various alternatives or proportionality of prices and marginal rates of product substitution.)

(4) The timing of production (sales) given certainty (near) as to price variation—the problem of seasonal price variations. (A special case of problem 3 with output of a given commodity in two different time periods taking on the same relationships as output of two commodities at a given point in time.)

¹² The "problems of production" might have been presented in alternative statements such as—the combination of resources, including scale of operations and enterprise selection, under static and non-static conditions; problems of physical transformations, including product into product and factor into product, and formulation of price expectations; or in a broader sense, the allocation of resources within firms, between firms, and between industries. The mode of presentation employed serves better here. The problem of terminology is important, however, and partially serves as an obstacle to applied-pure scientific progress in economics. Although the problem is mutual and the solution is in common, the "language" of the applied economist is not "fashionable" to the pure economist and vice versa. Accordingly, one does not fully realize the accomplishments of the other and a fertile interflow of ideas is prohibited or each misunderstands and underestimates the accomplishments of the other. In this paper an attempt has been made to link the two "languages" wherever possible by qualifying the one in terms of the other. The stage for progress will indeed be established when the applied economist understands what the pure economist "is about" and equally when the latter understands the activities of the other.

(5) The level of resource conservation. (A special consideration of problem 1 with a different time span consideration and including considerations of time preference and interest rates.)

(6) The optimum scale of operations. (Returns to scale and short-run and long-run cost curves; equation of marginal costs and returns, capital rationing, return discounting, and risk aversion.)

(7) The method of obtaining control of the resources to be used in production and the consequent combination of resources. (Equity ratios and principles of increasing risk, resource productivities and market prices for factors, price and production uncertainties and discounting of future returns.)

(8) Adjusting to change and uncertainty of the market and production process including growth of the business over time. (Probability distributions, discounting returns, flexibility and adaptability of the enterprise, timing of production and dispersion and convergence of expected prices.)

These are the specific categories of economic "problems" to be solved in farm production.¹³ Our model is over-simplified. Were it true that farmers had unlimited capital, then each specific "problem" could be considered somewhat apart from the others. In actual life the system is more complicated. Farmers generally have limited capital and returns can then be maximized not by attaining

¹³ In order to indicate that though the facet differs even these applied problems of production are common to the individual and society, examples of each are included here. Obviously, farm management research should be able to provide answers in either case. The number refers to the corresponding problem cited in the text. 1. To the individual—the level of yield per acre, milk production per cow of given capacity. To society—the numbers and marketing weight of hogs if world food commitments are met, the intensity of cultivating present before the reclamation of new lands. 2. To the individual—whether to use a chopper or loader for 30 acres of hay, whether to grow 20 litters on concrete or clean ground. To society—the acreage of soybeans and corn to be grown to allow a maximum output of meat and export of cereal grains, the optimum combination of labor and capital in agriculture. 3. Individual—the selection of crop or/and livestock enterprises. Society—the pattern of production most desirable in the current emergency, the extent to which production adequately adjusts to prices expressed by consumers how to facilitate needed adjustments in problem areas. 4. Individual—whether to maintain a "summer" or "winter" dairy. Society (milk marketing administration)—prices and policies to obtain desired seasonal quantities of milk. 5. Individual—level of feeding breeding stock in feed emergencies, level of land conservation. Society—extent of conservation practices vital to society but uneconomic to the individual and how to attain their achievement. 6 & 7. Individual—buy to a small farm or rent a large one, to abstain from borrowing and curtail operations. Society—kinds and amounts of credit not adequately provided through market mechanisms, changes in tenure institutions to improve resource combinations. 8. Individual—how to predict future prices, maintain output and minimize risk, adjusting production over time. Society—extent of gains in resource efficiency possible from forward prices, crop insurance and credit policy.

the optimum position for any one category, but capital must be allocated to equate the value of its marginal product throughout the business. Then too, the problem of adjusting the risk and uncertainty is much more complex than presented here. The core of the "farm management problem" revolves largely around these two factors. Complex models exist which treat these adequately. However, because of the limited scope of this paper and since farm management research traditionally has been unable or made little attempt to make substantial progress on either problem, the remainder of this paper will be restricted to analysis of some techniques aimed at answering the less complex problems. Although the facets are different, the central problems of production are the same to the individual business unit and to society. This again emphasizes the need for double-barrelled objectives in farm management research or a coordinated attack on the problems.

Data Needed for Perfect Answers

Were it possible to attain the ideal and provide the perfect answer to each of the farmer's production "problems," what information would be needed? On the one hand the list of basic data would include a complete inventory of input-output ratios or production coefficients. (Viz., rates of production, rates of transformation, etc.—ratio of livestock output to feed input for livestock fed at different levels; crop yields from all conceivable rotations, rates of fertilization, numbers of cultivations, varieties of seed, etc.; marginal rate of substitution of protein, carbohydrates and roughage feeds for each other in producing a given output of livestock; rate of substitution of machines and labor in producing a given amount of output; machinery depreciation, repairs and fuel requirements when used for varying acreages; time and motion studies indicating labor requirements for labor-saving as compared to labor-using techniques; etc.) Given this complete list of existing or yet-to-be-discovered physical data (the task of establishing input-output ratios per se is technology rather than economics) only one other type of data would be necessary for perfect solution to the individual farmer's production "problems." This is knowledge of future prices (and costs). Given these two sets of data, the perfect plan could be fashioned and on a research basis, two groups of investigators would be required: (1) the technologist to complete the list of production functions or input-output ratios and (2) the price specialist to pro-

vide knowledge of future prices. No other data would be necessary. Management economics would then simply involve the activity of combining these two sets of complete data. (Although with this knowledge the management function would be indeed minimized.) There would need be no field of farm management research. No new principle of profit maximization would be necessary. These are already given in economics. (A principle for giving the optimum answer for each of the simpler "problems" already exists, given the data, and can be proven by simple arithmetic, higher mathematics or common sense. The ninth problem would no longer exist.) Given unlimited capital the farm operator would, on the basis of the given physical and price data, increase crop yields per acre as long as marginal (additional) costs were greater than marginal returns. With limited capital he would also know exactly whether to increase crop yields via fertilizer or whether the marginal return of the same capital invested in protein feed or more or inherently higher producing dairy cows would be greater. A field of educational and extension farm management alone would be needed to teach principles of production economics or profit maximization. (Farm records would still be required to give an inventory of the individual's input-output ratios but these would not be necessary for research or between farm comparisons since the inventory of production functions or input-output ratios and price data would indicate the more profitable.)

The examples of basic data necessary for perfect answers to the "production problems" are extremes. Obviously, this complete inventory of data will never be available since the countless number of production functions yet to be discovered would require a gigantic army of research workers. Then why bother the imagination with this Utopian state of affairs? The reason is simple. It points the direction which research should move however slow the progress. It also suggests the futility of searching for "new principles" of profit maximization in farming when the need is obviously for the basic technological and price data necessary for existing principles. Lack of these perfect data is also suggestive of the type of substitute economic data needed in answering the specific problems.

Examination of Some Traditional Procedures

The importance of research directed at guidance of the individual farm has already been pointed out. Probably more rather than fewer

resources should be invested in this sector of economic research. But before more funds are invested stock should be taken of present procedures. To what extent do present research techniques result in findings which tell the farmer "the direction to adjust," "how far to go" and "how to get there." To what extent do the findings correspond with known and established economic models and technical relationships?

Only a few research techniques can be explored in a paper such as this. Accordingly, the remaining space will be devoted mainly to techniques and studies which often result in findings contradictory to known economic relationships and conditions necessary for profit maximization. One of these is the factors-affecting-farm-profits type of study in which data are sorted into a few groups on the basis of one variable, mean income computed and then are sorted again on the basis of other variables. Labor, income, management return or other residual "profit" figures are related to each "independent" variable as a measure of the relative efficiency (profitability) of the specific resource combinations. It is the resulting findings which most often contradict known economic principles and technical relationships. Some suggest increasing returns where it is well established that diminishing returns exist. Others imply no economic limit to the level which output should be raised or one factor substituted for another. Many overestimate the productivity of resource inputs throughout. On the following pages an attempt is made to uncover some of the inherent steps in research which may lead to distorted findings.

A common defect in farm management research has been the abuse given the commonly employed measures of efficiency. The labor, management or other residual income figure used as an index of efficiency is computed by charging part or all of the resources employed at market rates or prices. In principle this concept is acceptable if resources are charged at their actual productivity. Yet as used, this measure of efficiency may often lead to erroneous conclusions. If market rates are lower than the actual net productivity of the resources employed, the residual "profit" figure will include one component which is not due to efficiency of the given resource combination or farm practice but to the quantity of resources employed. In periods when the actual productivity of resources is above their market price, practices found on large farms will appear relatively too profitable as compared to practices found

on farms employing small quantities of resources. In periods when the market price is greater than the productivity the reverse will hold true. It is undoubtedly true that the efficiency (or lack of) attributed to minor practices (or perhaps major resource combination) has often been due to scale of operations. Refinements can be made which at least partially eliminate these imperfections.¹⁵ Although this weakness is generally recognized, research workers continue to "evaluate" minor practices on the basis of this imperfect criterion when the sample studied is small and includes large variations in the quantities of resources employed. It is also extremely doubtful that this technique is appropriate for determining the economic optimum milk output per cow or in studying resource combinations which vary with farm size.

The traditional factors-affecting-farm-profits study has attempted to get at the "level of output problem" by relating "profits" to the index of crop yields or rate of livestock production. The sample data are sorted into groups on the basis of (say) crop yield indices and the average "profits" for each group is computed. The results may show, for example, that three groups of farms with average crop yield indices of 75, 105, and 130 have labor incomes of \$60, \$75, and \$650 respectively. These figures (as well as many published) imply increasing returns and no economic limit to level of output per unit of specialized resource. Yet it is common knowledge that diminishing returns generally prevail in agriculture, and that returns will be lessened if inputs are extended beyond the point where marginal (additional) costs become greater than marginal (additional) returns. Finally, these data seldom provide the basis for action by the individual farmer in the sense that they tell the farmer "how to get there" or "how far to go." The farmer is told nothing about the components of these higher yields or profits. Should he simply try to attain the yields shown for the high profit farms in any manner whatsoever? The facts are interesting but there are no concrete data which the farmer can apply to his own farm. Information which is actually more useful on a specific farm is this: (1) Simple knowledge that (with unlimited capital) net return will be maximized if yields are increased as long as the value

¹⁵ See the article "Production Functions from a Random Sample of Farms," this JOURNAL, Nov., 1946. The note on efficiency is relevant. Another alternative is to include in a study only farms which employ approximately the same kinds and quantities of resources.

of the increased product is greater than the cost of the added input and (2) data which show the added physical output in yield with variation in rates of fertilizer application, crop rotations, etc. (to which he can apply known or expected prices). These are the data and information which can be put into action.

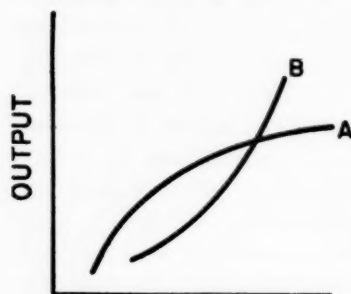


FIG. I

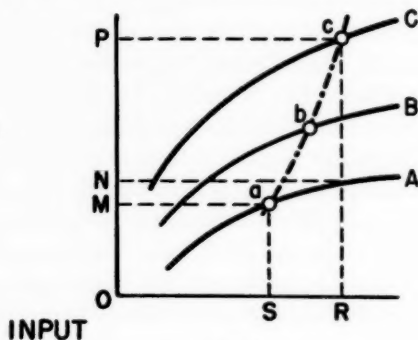


FIG. II

The farmer is interested in the relationship of input (or cost) to output (or profit) and only incidentally of output to profit. His control rests on inputs. Accordingly, input has been related to output in the following attempt to explain why traditional procedures may suggest distorted relationships and over estimate the productivity of specific inputs. (The basic reasoning is the same were output related to profit.) It is known that the existing production function or input-output curve for a specific resource applied to land (fertilizer, crop rotation, etc.) follows, over the major portion, the nature of curve A in figure I.¹⁶ Data of the nature presented above imply the curve B. Distorted findings relative to resource productivity and to relationships between input and output may be explained by several factors: one is the possibility that farms with high crop yields also are using large amounts of resources. Part of the returns to these resources are then attributed to crop yields. Another, one obviously expected, is that better farmers are on the high yielding crop land and part of the efficiency (profit) of other practices is being attributed to crop yields. However, another important economic concept and statistical or technological relationship is involved. It is the notion that a distinct production function or input-

¹⁶ Increasing returns does hold in a fairly narrow range of agriculture. It is well known, however, that the important range of production takes place largely in the range of decreasing returns. For this reason the details of an initial stage of increasing returns has not been incorporated into figures I and II.

output curve exists for each quality of resource. That "low," "medium" and "high" crop yields will be found especially on sample farms with land of low, medium and high productivity respectively is almost certain. Figure II illustrates the expected outcome when this occurs. Curves A, B, and C represent the production function (yield of crop for varying levels of fertilizer input, rotation, etc.) on three soil types of "low," "medium" and "high" productivity respectively. The mean crop yield indices obtained by sorting farms into three groups have the partial effects of isolating the three points a, b, and c—one on each of the production functions. This gives the "apparent" input-output curve (and a corresponding profit curve) of abc. It is not a distinct production function in itself but instead connects three points on several separate input-output curves. Whereas it implies that if farmers with low yields (including those on soil of "low" productivity) increase inputs from OS to OR they will traverse curve abc, and crop yields (or profits) will increase from OM to OP. However, since farmers on soil of "low" productivity are faced with the true production function A, an input of OR gives a yield of not OP but only ON. Extension of inputs with the hope of getting yields of OP may result in less than maximum profits.

The nature of the "apparent" production function grows more out of substitution of one soil type for another in the process of data sorting (grouping of the farms on the basis of crop indices) as from inputs or practices which any one farmer may be able to control on his own farm. The analysis then not only distorts the nature of the relationship but overestimates the productivity of the input throughout the entire range. (This is true even if the apparent curve abc is a straight line or slopes to the right—constant or decreasing returns.) This is evidenced in the example since the rate of increase (slope) of the "apparent" production function is greater than for any one of the other three. Even the farmer on the most productive land would not realize an increase in output per unit of input as great as is implied by the "apparent" curve.

In a sample which is "sorted" by one variable (practice) then succeeding by others and where the most (and least) productive practices tend to be grouped on farms, the figures of each sort will overestimate the productivity of the particular input. The overestimate of the productivity of any one input (practice) will then be compounded in proportion to the number of others investigated.

The findings of the agronomist based on a random (or block)

sample of farms and relating yield to rate of fertilizer application would have little meaning: The effect of varying rates of fertilization would be confounded with differences in soil type, rotations, seed variety and a multitude of other factors. Similarly, the farm management research worker must consider the sampling or experimental design employed by the technologists if he is to investigate those problems in which the underlying technological relationships are largely expressed in their dollar-and-cents counterpart. Only then can the components of higher crop-yield profits be broken down such that individual farmers can take the data and apply the specific elements to their own farm.

The same approach is often employed in relating milk output per cow (or other rates of livestock production) to "profits." The problem of the most profitable level of milk output per cow can be broken down into two distinct elements: (1) The milk output of a cow of given inherent capacity can be increased by varying the rate of grain feeding or application of other inputs (problem 1). (2) A cow of one inherent capacity can be substituted for a cow of another inherent capacity in producing a given output of milk ("200 pound" cows can be substituted for "400 pound" cows or vice versa—problem 2). (In other words, feed can be substituted for cows or cows can be substituted for still other cows in obtaining a given output of milk.) The traditional findings ordinarily indicate no economic limit to which milk production per cow may be extended. Again a likely explanation is that of figure II: The means computed for the groups isolate only single points on different input-output curves and overestimate productivities throughout. Finally, there is little economic logic in attempts to establish that one level of milk output is most profitable since it is known that the most remunerative level of grain feeding depends on milk/feed price relationships.

We now pass to a clear-cut example of substitution—substitution of one resource for another in producing a given output of product (problem 2). Farm management research has sometimes been aimed at establishing the level of protein feeding for hogs (or similar practice that gives the greatest net "profit" or the greatest return per dollar fed). On the basis of experimental data for hogs of 35–75 pounds it is known that the product contour in producing 100 pounds of pork is of the general nature shown in figure III. The product contour or curve shown represents the alternative combinations of protein and corn that can be employed in produc-

ing 100 pounds of pork. The 100 pounds of pork can be produced with combination A of 330 pounds of carbohydrates and 45 pounds of protein, with combination B of 250 pounds of carbohydrates and 51 pounds of protein or with combination C of 64 and 225 pounds respectively. Again, there is little economic logic in attempts to establish that one protein-corn combination is always the most profitable.

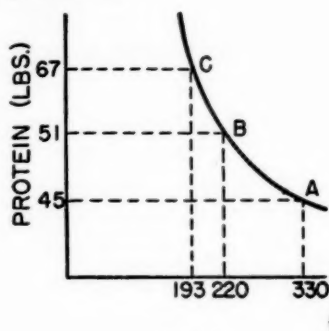


FIG. III

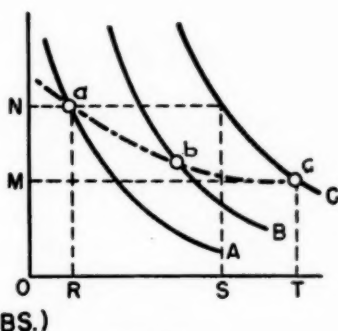


FIG. IV

The reason that farm sample or record data tends to indicate that one combination is always most profitable is partially explained by the illustration of figure IV. Three assumed product contours are presented: A is representative of pork production which includes "disease-free lots," "high-fecundity sows," and "vitamin-complete ration." B represents production which includes only "disease-free lots" and C represents production which includes none of the three. (This is about what farm sample data indicates—individual practices on farms are highly associated.) The traditional procedure divides the farm sample data into (say) three groups—high, medium and low levels of protein feeding and computes means of feed requirements for each. The a priori probability is nearly 1 that the group of farmers feeding small amounts of protein will include most of those who have diseased lots, vitamin-lacking rations, etc. In effect the three means will then be representative of single points on each of the three different curves (a, b, and c). This implies a product contour (curve showing the possible protein/carbohydrate combination in producing 100 pounds of pork) of the nature indicated by the line abc. On the basis of this curve, it appears that if farmers for which the average "c" is computed were to increase protein feeding from OM to ON they will reduce carbohydrate requirements from OT to OR. However,

if they vary protein feed only they move not up the "apparent" product contour *abc* but up the real curve *C*. Corn requirements thus decrease only from *OT* to *OS*. The results of substituting high for low fecundity sows, disease-free for diseased-lots and mineral-complete rations are confounded with the substitution of protein for corn. The data over estimate the marginal rate of substitution of protein for corn. Again the warp and woof of the cloth are not segregated and isolated such that the farmer can apply the information in a meaningful manner in evaluating the economy of rations.

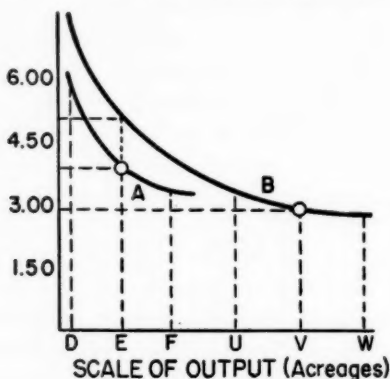


FIG. V

The farm management data are ordinarily presented in monetary terms—returns per \$100 feed fed or as labor income. Yet the basic technological relationships and complexities still exist. They are not removed by attaching a dollar sign to the data.

Let us examine still another "production problem"—the selection of a haying method. This problem unfolds itself to the individual farmer mainly as "problem 2"—the substitution of capital for labor in putting up a given acreage of hay. But when the results are to be established on the basis of a farm sample, it also involves another economic concept which provides the hypothesis about the appropriate sample design and statistical analysis. This is the concept of a cost curve (problem 6) and unless recognized in designing the investigation the published findings may lead to erroneous decisions. Figure V illustrates a likely outcome if this concept is ignored. The curve *A* represents unit costs for putting up hay by "loader." Curve *B* is representative of that for a "baler"—fixed outlay and high unit costs for small acreages. The "baler" is new while the "loader" is an old technique. Because of the high fixed

or initial costs it can be expected that the "baler" will be found mainly on farms with a large hay output.

Various sampling and statistical techniques have been used in analyzing problems of this nature. In some instances an unstratified sample of all haying methods has been employed with the result that data is obtained for perhaps six choppers, sixty loaders, twenty balers, and two buck rakes. Means are then presented without indication of sampling errors or fiducial limits. Let us assume in our example that the efficiency of the overall sample has been increased at least to the extent that equal numbers of records are obtained for "loaders" and "balers." (No other sample or experimental design is employed.) Then suppose that we follow traditional procedures and compute the mean costs per ton of putting up hay with "loaders" and "balers." We thus get two means (assumed) of \$3.87 and \$2.80 respectively and on the basis of these the baler appears most efficient. But what have we? Because the balers are found on large farms, our "baler sample" includes mainly farms with acreages between U and W and the mean is representative of one point (V) on this curve. Our "loader" sample includes farms with acreages between D and F (with a mean of E). If farms with a hay acreage of E adopt a "baler," their per ton costs are not \$2.80 as the computed mean suggests but \$5.00.

The means are misleading. To provide a true basis for evaluating haying methods by farmers, the concept of the cost curve must be recognized and a sample designed accordingly. This requires not merely the simple stratification presented in our example above (which is more efficient than an unstratified sample drawn from the entire "haying" population). Rather the most efficient sample in this case is a purposive or objective sample (but still random) drawn separately for each the baler and loader. It must allow an estimate of the cost curve or its equivalent for each method. The sample would then include equal numbers of farms with hay acreages varying throughout the practical range of operations.¹⁷

We could cite other examples of research in which traditional procedures suggest erroneous courses of action because the underlying economic and physical relationships are not recognized or

¹⁷ Too, certain other problems of statistical and technological controls are present in haying studies and thus pose the possibility that more reliable data can be obtained through controlled experiments. The estimation of the pure physical relationship—the relative quantity of labor required per ton by various methods—may be distorted on a basis of farm data since (1) farms with the new technique have on the average, newer machines and fewer repair stops or (2) may have different kinds and yields of hay.

separated in designing the study. Farm management research directed at the individual firm has been too much concerned with obtaining "all-purpose" data—data which attempt to answer all the "production problems" in a single blow by sorting and resorting information from a given sample of records. The consequences often are that none are solved in a useful quantitative manner since experimental or sample controls are imperfect. True, the farm business is an entity and profits can be maximized only by equating marginal returns in the various alternatives. Yet these relative returns are not given by the traditional factors-associated-with-farm-profits study. It is because the fundamental economic models and underlying physical relationships are ignored that many of the so-called principles of farm management take on hollow or erroneous meaning at some point. (They imply no economic limits.) How can the farmer put into direct use the finding that "the higher the crop yield index the higher the farm profits"? It tells him nothing about the components of the higher yields found on some farms and whether he would profit by their adoption.

Our critique of the traditional findings which imply that input and substitution of resources should be extended indefinitely, has perhaps been too severe. To the extent that farmers generally apply inputs short of the rate which is economically efficient then a blanket recommendation to this effect is not completely in error. Even then many farmers may have a rational explanation of their position. Farming is notably an industry short on capital. In this case and especially where much of the land is tenant-operated the problem of maximum returns may be more nearly one of applying a variable resource as capital to a fixed resource as land in a manner to give the greatest product per unit of the former rather than the latter resource. Too, studies which set out to establish *the one most profitable* level of crop or livestock output underestimate the mental ability of farmers. Statistics indicate that many farmers understand the elementary concept of diminishing productivity and vary the rates of grain-feeding dairy cattle, marketing weights of hogs and cattle and rates of fertilizer application in response to changes in commodity-price/resource-cost relationships.

There is an element of merit in the idea sometimes forwarded that the factors-affecting-farm-profits type of study is "qualitative" rather than "quantitative" (attempts to find "the presence of" factors affecting profits rather than the "numerical effect" of one variable or input on farm income). The contribution of these

"qualitative findings" is also questionable where they contradict and are not qualified in terms of known economic and physical relationships. (The findings are often presented as graphs or regressions of "profit" on independent variables and thus express a quantitative relationship.) If this research is to be looked upon purely as qualitative, then the data might best be "sorted" by income and the values of other factors explained in terms of "the characteristics or description of high income farms" rather than "sorted" by values of independent variables, related to income and couched in terms of "the effect of these variables on farm profits." Finally, even if research along traditional lines is looked upon as "qualitative" rather than "quantitative," identical basic issues are at stake. It is mainly because the "presence of" erroneous relationships are "found" that errors in "numerical values" of relationships are "found" and vice versa. This can again be illustrated by figure IV. The quantitative productivity of the resources is overestimated by curve abc only because the design in the assumed study is one which estimates the "presence of" a curve abc. Is it not as much an error to find "the presence" of a functional relationship which does not exist in a practical sense as to estimate magnitudes of this same relationship?

Without question, farm management research has made some important contributions in establishing the "quantitative" and "qualitative" productivity of farm resources. Perhaps even findings with the limitation outlined here have been of value as "persuaders." Yet as a maturing field of study, farm management should be capable of closing some gaps that still exist.

Ideally, the individual farm might best be guided in the use of its resources were a complete inventory of production functions available along with information on future prices. Even in this real world and in the absence of perfect price expectations, the individual can probably best be guided on levels of crop and livestock production, substitution of feeds and on similar problems from the results of controlled experiments (with some simulation of farm conditions) translated into economic terms. The notion that experiment stations should tomorrow attempt isolation of all these countless production functions is, of course, preposterous. It is unnecessary to go thus far. Even a few which allow extrapolation with a reasonable degree of accuracy would facilitate a better combination of farm resources and eliminate the need for at least part of the traditional farm surveys which probe in this area. (In

addition to the Jensen production function for dairy cows of high capacity, for example, two or three more for typical farm cows of other capacities are needed and might suffice.) The professional interests of physical scientists have generally led to the establishment of only one or a few points on the upper reaches of the production function. Increasingly, there is a need for collaboration between economists and physical scientists in the experimental determination of the full practical range of the curve and in its economic interpretation.

Certain physical input-output ratios or production coefficients are not subject to feasible determination by "experimental plot" methods. But even though these are based on farm survey or record data, the experimental design techniques applicable in the "trial-plot" must be incorporated in the farm sample where the basic characteristics of the data are similar. The fact that physical data is gathered from a farm enumeration rather than from an experiment does not, by some magic, convert it from technology to economics. Neither does it change the nature of the appropriate statistical controls.

Sample Designs

Discussions of sampling procedures as applied to farm management have largely missed the crux of the problem. Most have centered around random samples versus block samples versus lack of scientific sampling procedure. The relative efficiency of different sampling methods is not a subjective phenomenon but can be measured quantitatively. It is true, however, that so much emphasis has been focused on the "random versus block" argument that the real core of farm production economics sampling has been bypassed. It is now common knowledge that if the main objective of the survey is estimation of such parameters as mean values or frequency distributions of a single population, the most efficient sample (statistically) is a random (or stratified random) sample. If the primary objective is the comparison of means (and related statistics) between two or more discrete populations (e.g., mean income for "owned" and "rented" farms) a random sample should be drawn from within each of the two populations. Although the appropriate size of sample will depend upon the variance of each population, a sample of equal size might, for example, be drawn from each. (This is in contrast with the procedure wherein a sample is drawn from the entire "haying population" such that one gets

four "choppers," seventy "loaders" and fifteen "balers" when the real objective is to make comparisons between the distinct hay-making populations or techniques.)

Proponents of "block" sampling contend that they are not attempting to make population estimates but to establish relationships. (Most do use the sample data to enumerate certain characteristics of the area. This involves, of course, use of the means or other statistics as an estimate of the population parameter.) The fundamental issue, however, is not one of population estimates per se but this: A large number of studies are not directed at estimating the arithmetic or other mean of the population but are actually involved in estimating regression or functional relationships for the population. (Probably well over three-fourths of research based on farm data has been inherently concerned with the regression relationship between two or more variables.) Accordingly, it is true that the most efficient sample in these instances is only infrequently the one most efficient for estimating the arithmetic mean. Yet the appropriate or most efficient sample for estimating regression relationships is not given by a block sample. Neither is the role of the sample as an estimate of the population parameter eliminated. A population parameter is still being estimated but it is a regression coefficient rather than a mean. (This is true even though the statistical analysis employed is simple cross-tabulation.) A sample drawn such that each individual in the universe has the same probability of selection (or a block sample which is a complete census of a restricted population) will give a frequency distribution with the greatest number of cases concentrated around the mean or mode and with few at the extremes (a bell-shaped frequency curve if a normal distribution—although most farm data are skewed toward the upper limit). Obviously, this is not the most efficient sample for estimates of regression coefficients. Instead the appropriate sample is one which gives (approximately) an equal distribution of the independent variate throughout the entire range of the data (as many cases in the tails of the distribution as at the mean, mode or other point of the distribution). The sample is still random but it is stratified in the sense that an equal number of cases are drawn *at random* at each point (or within each interval) over the entire range of the data.

Here is the basic sampling problem of production economics. This is true not only for the studies which relate to the problems cited here but also for many other problems relating to resource

efficiency. Empirical studies such as those concerned with returns to scale in agriculture and of the relationship between equity ratios and the willingness to accept risks would ideally be made on samples of this design. These samples are not easily established. Too few characteristics of individuals making up the population have been inventoried. Some possibilities do exist, however. List sampling, samples drawn from master samples and reconnaissance enumeration of the independent variable in question are a few. Yet this, the real problem of sampling in farm production economics research, has scarcely been scratched. It needs much greater attention.

Research in the economics of farm production is still far from fully developed. Too few resources have been devoted to fundamental research and development of methodology. The researcher has been too busy "getting out answers tomorrow." In the long run investigations will be more productive if a greater proportion of research funds are allocated to sample design, to statistical analysis, and to pilot studies which test given economic models.

Common Problems

The problems posed here are not necessarily those which should be given prior consideration in a research program. They are simply the ones which research must solve if it is to provide the "answers" which the individual farmer must have if he is to make a maximum use of his resources. However, an important problem area which has scarcely been scratched from the standpoint of empirical research is this: We previously stated that a basic "problem" is present in resource efficiency when the "existing" use of resources deviates from any theoretical or empirical "optimum" which can be established. More is known about the optimum than about the extent and cause of the gap between the "existing" and the optimum. Theory provides tools which explain the optimum scale of operations and combination of resources in general. Farm management has in a sense attempted to determine an empirical optimum in establishing the characteristics of the "most profitable farm." Obviously, there is some important and sound reasoning in the minds of farmers for not attaining this optimum even though it be what the "most profitable farm is doing." Otherwise the other "seventy-five" percent of the farmers would follow the recommendations of research. Numerous forces condition the use of resources

on farms and explain this gap. Included in this list are lack of knowledge, uncertainty of the market, capital rationing and limitations, leasing and tenure imperfections, imperfect adjustments to price and production processes, sociological factors (family-farm relationships), psychological factors (inherent characteristics of individuals), consumption economic considerations (competition of household and business for funds) and general deviation in costs and returns between the specific farm and that outlined under the "optimum." Production economics research should probe further in exploring this gap as reflected on individual farms. Only then will attempts to bring about the most efficient use of farm resources become entirely realistic. Individual farmers can be better advised. But as important is the fact that a base will be laid for altering customs, institutions and programs which condition the efficiency of farm production. Not all aspects of this "gap" are economic. Accordingly, there is need for cooperative studies with sociologists, psychologists and kindred scientists.

Again, we wish to emphasize the need for relating studies of the agricultural business firm to the economy as a whole. Contributions of research designed to guide the firm into profit equilibrium are real and important. Yet a large part of the research must consider or be justified in terms of the entire economy: 1. The outcome "apparent" from a study of a sample or small group of farms may be entirely misleading were large numbers of farms to make the adjustments and as market prices and costs change accordingly. 2. Recommendations based on sample data ordinarily cannot be brought about unless changes are made in other segments of the area or industry. (viz. adjustments in farm size, etc.) 3. Output—increasing adjustments by all farms must be justified mainly in terms of social welfare where commodity demands are inelastic, as is true for many agricultural products. (Increases in total output result in a smaller rather than a larger industry revenue in case of inelastic demands). 4. The conditions necessary for profit equilibrium are generally necessary for resource efficiency in terms of social welfare. Yet, research should aid in isolating and eliminating areas in which private profit maximization is inconsistent with long-run social objectives. Finally, if the only ends of farm production economics were extension of private profits, some of the more effective means would include output restriction, tariff legislation and other market manipulations in behalf of the farm operator.

AMERICAN SUGAR POLICY—1948 VERSION*

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SEVERAL recent enactments affecting specific agricultural commodities have been severely criticized.¹ Among them the Sugar Act of 1948² clearly exemplifies the features attacked most vigorously. Its passage reflected (1) the prevailing tendency of Congress to introduce extreme inflexibility into agricultural programs by tying prices and production to historical bases, (2) the tendency to legislate regulatory programs in isolation from, and sometimes in conflict with, major non-agricultural policies,³ and (3) the success with which minority groups can exploit Congressional forms and procedures to secure passage of "special interest" legislation. This paper examines the sugar program, first as an economic policy, and secondly, in a more purely political context, testing the hypothesis that "the kind of policy we have is intimately related to the way it is made."⁴

Any investigation of this nature presupposes certain criteria against which the emerging economic policy and the political procedure through which it becomes law can be evaluated. A study of sugar policy reveals a whole complex of what Myrdal has termed belief-valuation conflicts.⁵ Ideas about the nature of reality and ideas about what reality ought to be, whether implicit or expressly stated, have had a profound influence in shaping sugar policy. It is necessary, therefore, to summarize briefly the writer's beliefs and valuations that will serve as criteria in this discussion.

1. The general welfare, though extremely difficult to define precisely, does exist. One aspect of it, precise at least conceptually, is the maximization of the social product—the achievement of maximum efficiency in the allocation of resources. It is contended

* In revising this paper I have benefited from the critical comments of Professors T. W. Schultz and D. Gale Johnson.

¹ For a study of the nature and implications of recent tobacco legislation see Charles M. Hardin, "The Tobacco Program: Exception or Portent," this JOURNAL, XXVIII, No. 4 (November, 1946), 920-937.

² Public Law 388; The Sugar Act of 1948 (Eightieth Congress, First Session; Chapter 519). (Hereafter referred to as *The Act*.)

³ See President Truman's veto of the Wool Act of 1947, 93 *Congressional Record* (Senate), 7847, 8; June 26, 1947.

⁴ Hardin, *op. cit.*, 934.

⁵ Gunnar Myrdal, *An American Dilemma* (New York: Harper, 1944), Appendix 1, 2, 1027-1064.

further that efficiency can best be achieved through a freely competitive market, utilizing the price system as the directive for resource allocation. Three specific criteria for action follow from this basic valuation. *First*, government interference with the market, though sometimes necessary, should be kept to a minimum, and such intervention should be directed so as not to disrupt the important resource allocating function of the price mechanism. *Second*, government intervention on behalf of one sector of the economy should not perpetuate basic disequilibria by discouraging or preventing resource reallocation that would serve the general welfare. On the contrary, it should be directed to reducing inefficiencies by encouraging the necessary adjustment, even if this may involve a decline in the position of a politically important group. *Third*, foreign economic policy should strive for trade as free as the dictates of national security permit.

2. The United States has emerged from the war to a position of dominant influence in international economic and political affairs. It is therefore incumbent upon the nation to accept the responsibility of world leadership and use its influence to further international economic and political cooperation.

3. Defects in both the procedure and organization of Congress make it vulnerable to the policies and programs of special interest groups. The exploitation of these defects is viewed by the writer as a particularly vicious and dangerous form of minority rule, and every effort should be made to correct the structural faults that make it possible.

Background

Sugar, more than any other American crop, has been a child of government policy.⁶ The sugar tariff, originally a revenue measure, became openly protective in the 1890's, with a consequent rapid development of the continental beet and cane industries, and similar expansion of cane production in Hawaii, Puerto Rico, and the Philippine Islands. In 1903, the policy of according Cuba preferential tariff treatment was instituted, and Cuba rapidly became an integral part of the American sugar system. Imports from foreign nations other than Cuba have been almost completely excluded by the tariff.

⁶ For basic background material see John D. Black and Catherine T. Corson, *Sugar: Produce or Import*. (Berkeley and Los Angeles: University of California Press, 1947.)

Disruption of trade made sugar extremely scarce during World War I, but in the interwar period, technological advances and increased protection so expanded world production that the industry was in a chronic surplus position by the early thirties. Aggravated by the adverse demand situation during the Depression, the free market price reached a low of less than a cent a pound in 1932. Domestic producers, despite Hawley-Smoot protection of two to two and one-half cents a pound, suffered severely and relief in some form was necessary. This was provided by the Sugar Act of 1934, a variation of the AAA crop control program. Operating through import and domestic marketing quotas and direct subsidy payments, it was successful in relieving the glut on the American market. Expanded and extended in the Sugar Act of 1937, the program was continued in its essential features until wartime needs led to the suspension of quotas and adoption of the support price program.

The Sugar Act of 1948

The present legislation, which is to run for five years, marks a return to the policy of 1934-42, differing only technically from the program of those years. Its objective as set forth in the preamble is "to protect the welfare of consumers of sugars and of those engaged in the domestic sugar-producing industry; to promote the export trade of the United States; and for other purposes."⁷ So much for the formal statement. We shall examine it more closely after a consideration of the program through which the policy operates—the techniques and powers given the Secretary of Agriculture.

The Secretary is to determine at the end of each year the consumption requirements of the continental United States for the next year. Of this total, approximately four and a quarter million tons is to be apportioned among the five domestic producing areas, U. S. beet, U. S. cane, Hawaii, Puerto Rico, and the Virgin Islands, on the basis of fixed tonnage allotments; such allotments in each case being in the neighborhood of maximum pre-war production. Nearly a million tons is allotted to the Philippine Islands, and of the remainder, Cuba is assigned 98.6 percent, and other foreign countries are permitted to supply 1.4 percent. This procedure is a departure from the earlier Acts which prorated total consumption requirements entirely on a percentage basis. The final restriction on imports is a tonnage limitation on the amount of direct con-

⁷ *The Act*, 1.

sumption sugar that can be included in the quotas of the offshore areas.

The quota provisions are buttressed by subsidy payments for the domestic producers. Payment is contingent upon the producers' meeting several requirements: not employing child labor; payment of farm laborers in full and at wage rates above a minimum prescribed by the Secretary; and finally, observance of the marketing and processing quotas set by the Secretary on the basis of past production, ability to produce, and the interests of new producers. To finance the subsidy payments, the half cent per pound processing tax has been continued for the duration of the Act. It is to be noted that the "referendum" feature of other crop control legislation is missing here. The regulations are to be observed by all persons involved in the production, processing, or marketing of sugar, and violators are to be fined three times the market value of any excesses.

Relation to Stated Objectives

How does this elaborate machinery serve the policy objectives set forth in the preamble? First, to what extent does it "protect the welfare of consumers of sugars?" The sugar tariff while not an integral part of the Act is still in effect, and the rate of one-half of a cent on imports from Cuba causes a direct price increase. The tariff, however, is much less important as a price determinant than the overall consumption quota set by the Secretary. Quotas, theoretically at least, could be determined in the best interests of consumers, but past experience and the technique of quota determination prescribed in the Act indicate that a "fair" price for producers is considered more important than an equilibrium price for consumers.

A possible second interpretation of the consumer welfare objective is providing an adequate supply of sugar during future national emergencies. Disregarding the political implications of this view, experience during both world wars indicates that it is highly questionable. Labor and supplies were diverted from sugar to other lines of production during World War II, nearly halving domestic beet output, and imports from Cuba were greatly expanded.⁸ En-

⁸ U. S. Congress, House of Representatives; *Sugar Act of 1948*, Hearings before Committee on Agriculture, Eightieth Congress, First Session, June 21, 25, and 27, 1947, 47, 48. (Hereafter referred to as *Hearings*.)

couraging a high level of production in Cuba therefore seems a wiser policy from the consumer viewpoint.

The second policy objective is "to protect the welfare . . . of those engaged in the domestic sugar producing industry." As Secretary Anderson explicitly stated, "the bill has as its primary object the stabilization of the sugar producing, refining, and importing industries."⁹ It is then a producer's, not a consumer's bill, aimed at "stabilization" of the domestic industry. The quota system outlined above assures domestic producers and processors a major share of the market and a price that will be satisfactory to them. In setting the total consumption requirements, which in turn set sugar prices, the Secretary is to use as a basis the sugar consumption of the previous year adjusted for inventory changes, changes in population and demand conditions, the level and trend of consumer purchasing power, and "shall take into consideration the relationship between prices at wholesale for refined sugar that would result from such determination, and the general cost of living in the United States as compared with the relationship between prices at wholesale for refined sugar and the general cost of living in the United States obtaining during 1947 prior to the termination of price control of sugar. . . ."¹⁰ This final provision replaces the requirement in the 1937 Act that the total quota not fall below the per capita consumption level of 1937-38. It in effect substitutes a safeguard against too low a price to producers for the previous provision protecting consumers against too high a price. It will be noted that among all the factors entering into the Secretary's determination, only this is sufficiently specific to provide a rule, a non-arbitrary criterion. A logical inference is that it will therefore become the primary consideration. When asked what effect the use of this factor would have on sugar prices, George A. Dice, Chief of the Sugar Act Division, Department of Agriculture, provided statistics showing that wholesale prices during 1938-40 would have been fifteen to seventeen percent above what they actually were.¹¹ And it must be borne in mind that strongly protective measures already were operating at that time. James H. Marshall, Director of the Sugar Branch, Department of Agriculture, stated with amazing candor,

⁹ *Ibid.*, 16.

¹⁰ *The Act*, Title II, Sect. 201, 2, 3.

¹¹ *Hearings*, 63.

As I understand it, Mr. Chairman, the reason why the domestic sugar people are desirous of that change is they feel the old factor did not reflect quite as high a price as it should have, because if that factor had been in existence during the prewar period it would have resulted in a slightly higher price. I think it isn't just that fact, however; it is also that they are fearful that the old minimum which was in there on the 1937-38 per capita consumption could, under certain circumstances of depressed incomes, result in a very low price for sugar, if the estimate had to reflect 102 pounds raw value per capita, which is the old standard.¹²

The new requirement embodies the parity concept, but a different price index is to be used, and as with tobacco, a different base period is introduced. It can also be described as an inversion of the forward pricing technique, setting a supply to bring forth a desired price, rather than setting a price to bring forth a desired supply. In addition to quota protection and direct subsidy payments, the Act provides payments for "bonafide abandonment of planted acreage and crop deficiencies of harvested acreage, resulting from drought, flood, storm, freeze, disease or insects. . . ."¹³ It thus sets up a subsidized insurance program to supplement the other protective measures.

Turning now to the third stated objective, "to promote the export trade of the United States," let us look first at the announced government policy with respect to world trade. Among the objectives listed by the State Department in its suggested charter for an International Trade Organization is the following:

4. In general, to promote national and international action for the expansion of the production, exchange and consumption of goods, for the reduction of tariffs and other trade barriers, and for the elimination of all forms of discriminatory treatment in international commerce; thus contributing to an expanding world economy, to the establishment and maintenance in all countries of high levels of employment and real income, and to the creation of economic conditions conducive to the maintenance of world peace.¹⁴

The position of the Department of Agriculture is set forth in the following excerpt:

The long-run goal should be an expansion in the imports of those goods and services that foreign countries can produce more cheaply than we can and thus increase the opportunities for the employment of our domestic

¹² *Ibid.*

¹³ *The Act*, Title III, Sect. 303, 10.

¹⁴ U. S. Department of State, "Suggested Charter for an International Trade Organization of the United Nations," (September, 1946), 1.

resources in the production for export of goods that we can produce more efficiently than foreign countries.¹⁵

With respect to commodities in world surplus, it stated:

Production programs would give consideration to relative efficiency and comparative advantage of producing various commodities. Production curtailment if necessary would be of least efficient producers. An effort would be made to facilitate the shift of the resources of these relatively inefficient producers to more efficient uses both as concerns countries and areas within countries.¹⁶

To evaluate American sugar policy in relation to these statements is to labor the obvious. The techniques through which it is made effective—quantitative and qualitative restriction of imports and preferential tariff treatment—are directly contrary to the aims of the I.T.O. Economically it represents a striving for self-sufficiency which can only be achieved at the expense of efficiency. It is generally recognized that Cuba can produce and deliver sugar to the United States more cheaply than any of the five major domestic areas. The trade policy partially set forth in the quotations above dictates continued expansion of imports from Cuba and a downward adjustment of domestic production. That Cuba has the capacity to supply a much greater share of American consumption is evidenced by the 6½ million ton crop in 1947. Yet the Sugar Act encourages expansion of production at home while leaving purchases from Cuba at the mercy of the Secretary's quota determination.¹⁷

The economic effects on Cuba cannot be considered at any length here,¹ but their importance must not be minimized. While her exports will be sustained for the next two or three years by production deficits in domestic areas and the Philippines, there is every reason to believe that these deficits will decrease faster than domestic consumption requirements will increase, and Cuba will therefore suffer an absolute decline in exports. This factor, in the light of Cuba's dependence on a one crop economy and our refusal to per-

¹⁵ U. S. Department of Agriculture, "A Post-War Foreign Trade Program for U. S. Agriculture," Interbureau Committee on Post-War Programs (April, 1945), 12.

¹⁶ *Ibid.*, 20.

¹⁷ The Act provides for a minimum quota for Cuba of 28.6 percent of total consumption requirements, but with present consumption estimates this means only approximately 2,250,000 tons—less than half our 1946-47 imports from Cuba.

mit expansion of her refining industry,¹⁸ may have serious economic and political repercussions.

The policy conflict with announced international trade objectives is immediately apparent. "The restrictive sugar bill was one more evidence that the United States was all in favor of freeing world trade—as long as it did not disturb any Congressman's constituents."¹⁹ It points up a fundamental inconsistency which must be faced and solved if basic trade objectives are to be achieved.

One final provision of the Act must be mentioned. Section 202(e) gives the Secretary authority to withdraw any increases in foreign quotas provided by the Act "if the Secretary of State finds that any foreign country denies fair and equitable treatment to the nationals of the United States, its commerce, navigation, or industry." This section apparently was inserted at the request of the State Department.²⁰ Its intent was never made explicit by administration spokesmen, but the Agriculture Committee Report and ensuing debate indicated that it was designed to assure payment by the Cuban government of some eight million dollars owed Americans.²¹ The Act becomes thereby an instrument for the collection of private debts, using a technique that is a far cry from any interpretation of the "good neighbor policy."

Legislative History

The foregoing description has indicated the incompatibility of the Sugar Act with policies designed to achieve an efficient use of resources and with some of the announced policy objectives of the American government. The program is geared to the attainment of self-sufficiency in the production of a commodity which could be obtained more cheaply from abroad. It involves government controls as strict and as extensive as those employed in any private cartel or in New Deal emergency legislation. It extends special treatment to the domestic producers and processors of sugar and does it at public expense. While paying lip service to the protection

¹⁸ Section 207 of the Act specifies the amount of direct consumption sugar that can be imported from each of the offshore areas, the total being less than 600,000 tons. This provision assures the domestic refining industry of protection, but by so doing, precludes development of that form of industrialization in offshore areas—another instance of conflict with the objectives of the I.T.O.

¹⁹ *Time*, August 4, 1947.

²⁰ See J. H. Marshall's testimony, *Hearings*, 74.

²¹ 93 *Congressional Record* (Senate), 10415; July 25, 1947.

of new producers, emphasis is laid on historical production records in the determination of farm quotas. Furthermore, it runs counter to America's professed objective of freer international trade, and contains political implications equally contrary to announced principles of international relations.

Representative Murray was exaggerating when he said, "This sugar legislation includes everything that I think I have heard every member of Congress say that he does not believe in,"²² but one may well wonder how it passed a Republican Congress so easily. In considering this question much reliance must be placed on the published legislative history of the Act—*Committee Hearings and Report* and the *Congressional Record*. But such evidence is necessarily sketchy and inconclusive. Lobbyists, though they may appear before the Committee, are not heard in debate, and do their most effective work through personal contact with members of Congress. Both producer and processor interests, while small numerically, are tightly organized and have had a long experience in the lobby function of "short-circuiting the majority." The extent of their influence on any particular piece of legislation can at best only be a matter of conjecture when studying the published material. Other factors that for the most part elude the *Hearings and Record* are the personal and party loyalties of Congressmen, the influence of "key" members supporting or opposing the legislation, and of course the attitudes of those members who participate neither in the hearings nor the floor debate. Thus any attempt to account for the action of Congress is likely to be only partially successful.

Despite these difficulties, two lines of approach prove useful. The first is to consider the "objective" factors that figured in the passage of the Act. They are such things as the actual writing of the legislation, the Congressional mechanisms used in preparing, debating, and passing it, the voting record when available, and the structure and organization of Congress itself. The second takes account of the more "subjective" elements, and involves examining the arguments for and against as they appear in the *Hearings and Record*. Such study reveals many of the beliefs, attitudes, and valuations that determine Congressional action.

First among the objective factors must be noted the wide geographical distribution of the sugar industry and the political power

²² 93 *Congressional Record* (House), 8725; July 9, 1947.

it implies. The organization of the Senate has always given agricultural interests a disproportionate amount of power, but in addition, sugar growers or processors, though relatively few in number, are a powerful element in about half of all the States. Beet growing has been integrated into the production programs of farmers in seventeen States, and cane is important in two. Processing plants are located in the areas of heaviest concentration, and along the eastern seaboard; refining plants for offshore sugar comprise another strong political influence. A large number of Senators and Representatives therefore must "think" in terms of the direct effect of sugar legislation on their constituents.

Turning now to the legislation itself, a new bill rather than an extension of the old one was considered necessary in order to give Cuba a larger share of the market than the previous quota system provided. With new legislation in prospect, Secretary Anderson appealed to the domestic industry "to see if they could get together."²³ They rejected the proposals he made and proceeded to draw up their own which when presented to him, the Secretary found to be "fair."²⁴ This is reminiscent of President Roosevelt's action in 1933, but with the important difference that here a single industry was permitted to write its own legislation. Mr. Anderson was very surprised and pleased, and in fact commended the industry for reaching agreement, but in the light of the Act's assurance of continued prosperity, that agreement should not have been too difficult to achieve. The question of the State Department's attitude was carefully hedged whenever brought up during the hearings. J. H. Marshall said that they would "go along" with it, but added, "I would not state the position of the State Department as one of approval of this bill."²⁵ Thus he gave another indication that the program was developed in relative isolation from other government policy.

The bill was handled in the Senate by the Committee on Finance, and in the House by the Committee on Agriculture. Only the latter held public hearings and these were brief (three 2-hour sessions) and apparently poorly planned. According to Representative Flannagan,

²³ *Hearings*, 11-22.

²⁴ One of the most telling points in Representative Flannagan's vitriolic attack on the bill was his charge that the legislation had been written by Robert H. Shields (93 *Congressional Record* (House), 8809; July 10, 1947.) This allegation was not denied, and becomes significant in the light of Shield's having left the Department of Agriculture to become a lobbyist for the United States Beet Sugar Association.

²⁵ *Hearings*, 59.

nagan, no copies of the proposed legislation were supplied to the members until after the hearings had actually begun, with the result that no one was in a position to examine witnesses intelligently.²⁶ A witness from Puerto Rico, Pedro Nido, said that the Puerto Rican sugar industry knew nothing of the hearings until the day before they were to be held. Consequently he faced the Committee having seen the proposed bill for the first time some two hours before. Of the other witnesses, one, Frank A. Kemp, appeared on behalf of the five main domestic producing and refining groups, but no one appeared to represent either the Cuban industry or American consumers. When the bill was brought to the floor of the House it was considered in Committee of the Whole House on the State of the Union, with debate limited to two hours, and was then passed by voice vote. Discussion was even shorter on the floor of the Senate, and passage there was also by voice vote.

The significance of these facts may, of course, be overemphasized. They indicate that Congressional forms and procedures can lend themselves to shoddy legislative practice, but this does not mean that they are to be considered the only or even the primary cause of it. Nor can the policy conflicts that emerged be blamed on careless legislative handling. Both the policy conflicts and the use of legislative techniques that allowed them to develop are a reflection of conflicts in deep-seated beliefs and valuations held by members of Congress. To these we must now turn.

Supporting Beliefs and Valuations

The most obvious and probably the "master" valuation in support of the Act is the conviction that American farmers have an inherent right to the American market. This economic nationalism appears again and again in the hearings and debates and becomes the core of a whole system of beliefs and policy recommendations. Arguments for stabilization, expansion, or protection of the domestic industry are supported in the last analysis by the idea that domestic producers should not only be permitted, but assisted to supply the domestic market. An example of the beliefs related to this basic valuation is the discussion of possible price effects of the proposed program. When Representative Sabbath charged that it would cost American consumers two to three hundred million dollars annually, he was answered by Representative Andresen

²⁶ 93 *Congressional Record* (House), 8811; July 10, 1947.

who claimed his statement was erroneous because the tax on sugar was only half a cent a pound and yielded only about seventy million dollars a year, thus betraying a basic misunderstanding of the part played by tariffs and quotas in price determination. Representative Curtis also took exception to Sabath's statement and further clouded the issue by claiming, "There is nothing that will increase the price of sugar to consumers as much as a policy of depending upon offshore sources for our sugar."²⁷ What he meant by this is far from clear, but implicit in his statement is the belief that more sugar imports will mean higher prices. It probably refers to Cuba's abuse of her monopoly position during the twenties, but the low prices during World War II certainly provide a strong counter-argument. A third retort was given by Representative Elliott, "I am not fearful of the increase in price. I believe the supply and demand will take care of that phase. . . ."²⁸ True, supply and demand will operate, but they will not "take care" of increased prices resulting from an artificially restricted supply. All of these arguments reveal confused beliefs about how economic processes operate and how the Sugar Act was designed to capitalize on them to the advantage of the producer.

It would be redundant to examine all of the "pleas for protection" that are used to justify a policy of self-sufficiency, but the national security argument must be mentioned because it figured prominently in this legislation. The memory of wartime shortages led many Congressmen to advocate production at home of as much sugar as possible in order to "protect" consumers in the event of another national emergency. But here also the reasoning is shaky. The United States of course *can* produce *all* of the sugar needed, provided consumers are willing to pay the cost. Efficiency would have to be sacrificed, but the resources certainly could be made available. In wartime, however, efficiency is a primary consideration, and there would be far more productive capacity available at home to prosecute the war if Cuba were permitted to supply the bulk of the sugar requirements.

Also implicit in the self-sufficiency argument are conflicting ideas about America's international responsibilities and the extent to which they are being discharged. It is significant that not once in the debates was the International Trade Organization mentioned.

²⁷ 93 *Congressional Record* (House), 8724; July 9, 1947.

²⁸ *Ibid.*, 8725.

A statement presented in the hearings by the American Chamber of Commerce of Cuba did point out the Act's inconsistency with the objectives of the I.T.O., and Representative Pace deprecatingly referred to it, but other than these there was no indication of Congressional concern.²⁹ The Senate, however, appeared to be more internationally minded than the House. There Senator Robertson spoke of our "lack of due regard to the proper treatment of Cuba," and Senators Vandenberg, Connelly, and Pepper strongly condemned Section 202(e), both because it did not belong in sugar legislation and because it was so obviously unilateral. But they were answered by Senator Milliken who maintained that we were "extending a great and definite privilege to Cuba . . . a fabulous cornucopia of benefit."³⁰ In the light of this the least that the United States could ask is that Cuba pay her debts to American citizens. Clearly these are not arguments of fact; they express, rather, ideas about what does or does not constitute "just" treatment of a less powerful nation. They therefore cannot be brought into harmony by an appeal to logic or objective data. Though Senator Milliken's attitude may seem indefensible, it is nevertheless the stuff of which Congressional decisions are made.

Another conflict can be found in the discussions of the bill's effect on "free enterprise." One side of the argument was stated by Representative Buck, "Had the Sugar Act of 1948 been purposely drawn for the purpose of shackling one phase of free enterprise, it hardly could have been more successful."³¹ Representative Carroll, in answering this charge, said "I will admit it involves economic planning. It is one of those industries in our economy that requires bolstering and therefore some planning."³² The argument here then is not whether the Sugar Act involves planning and curtailment of competition—that it does is admitted by its supporters—but whether such planning is desirable. To Representatives Buck, Flannagan, Crawford and others, the rationale and techniques of the Act are bad because they violate the rather vague convictions these men hold about the nature of the economic system America has or should have; to their opponents, this conflict, if it exists, has been obscured by the more immediate considerations noted

²⁹ *Hearings*, 52, 65.

³⁰ 93 *Congressional Record* (Senate), 10415-22; July 25, 1947.

³¹ 93 *Congressional Record* (House), 8823; July 10, 1947.

³² *Ibid.*, 8825.

above.³³ To illustrate in its extreme the nature of this disagreement, a statement of Representative Hill, one of the bill's strongest supporters, is very revealing. Speaking of the extent of the Secretary's authority, he said, "That is the way the laws have been signed, and that is exactly how the sugar economy has operated—under a *dictator*, if you want to call it that. . . ."³⁴ This introduces the political implications of the "free enterprise" question. As already indicated the program gives the Secretary a great deal of discretion in determining quotas, prices, and wages. While acreage allotments probably will not have to be imposed for two or three years, perhaps even for the duration of the Act,³⁵ the other controls definitely will be applied. Representative Hill obviously considers this discretionary regulation justified even if it implies "dictatorship." His opponents, on the other hand, see it as a revival of what to them were the most objectionable political features of the New Deal. This basic belief-valuation conflict over the role of discretion and government control is one of the most important factors in any economic policy decision.

The foregoing review has been concerned with ideas and attitudes that are essentially "long-run" in nature, i.e., they help to shape not only sugar legislation but economic policy in general. But in politics, as Viner has pointed out, it is the short-run considerations that govern.³⁶ Attention becomes focussed on the "pressing," the "expedient," the "immediate." The Sugar Act therefore cannot adequately be evaluated in terms of its long-run implications alone. Important among the short view factors was the scarcity during the War. The sugar Representatives wisely capitalized on this fact, claiming above all that the Act would provide adequate sugar supplies. The appeal of this argument is readily understandable in the light of the recent problem of rationing and price control. Furthermore, many Congressmen remembered the bitter fights among the

³³ It is interesting in this connection to compare the debate between Representatives Hope and Flannagan on the Sugar Act (93 *Congressional Record* (House), 8813; July 10, 1947), and their positions with respect to tobacco legislation (Hardin's article, already cited). The two programs are similar in their restrictive and special interest aspects, and Mr. Flannagan uses arguments in condemning the Sugar Act very similar to those Mr. Hope used in his attack on the tobacco program. Mr. Flannagan wants the House "to leave tobacco problems to the tobacco growers and their Representatives in Congress," but sugar problems apparently should be the concern of everyone.

³⁴ 93 *Congressional Record* (House), 8817; July 10, 1947 (italics mine).

³⁵ *Ibid.*, 8728.

³⁶ Jacob Viner, "The Short View and the Long in Economic Policy," *American Economic Review*, XXX (March, 1940).

sugar interests themselves over the legislation in 1934 and 1937, and probably felt considerable relief when it was announced that all sectors of the domestic industry had "agreed" to the new program. This reaction is indicative of an undercurrent of frustration that ran throughout the hearings and debate. Some Congressmen, confused by the intricacy of the program, were willing to take the word of the more expert sugar men that it was a good bill.³⁷ They felt the necessity of some sort of legislation and in a sense abdicated their power to the Congressmen most directly concerned, which means, as we have seen, to the industry itself.

To say that legislation was considered necessary is to focus on probably the most pressing short-run consideration of all—the existence of a politically influential group whose economic welfare depends on government protection. First the tariff alone, and later the tariff in conjunction with subsidies and quotas has developed an industry which owes its very existence to those measures. Discontinuing such aid would cause immediate and serious economic dislocation, particularly in the cane States. It would also involve the danger of political frustration resulting from a feeling of injustice on the part of the farmers and processors affected. The remarks of Representative Miller reveal how intensely the farmers feel about their protected position.

I remember a former Secretary of Agriculture. He was Vice-President at one time. He recently was made editor of a magazine. He went out into my country a few years ago when he was Secretary of Agriculture, and made the statement that sugar beets and sugar cane should not be raised in the United States; it was economically unsound. Well, they hung that gentleman one evening in effigy. I can still see his effigy hanging on the end of a rope, and there was a very mad group of farmers around the likeness of Henry Wallace.³⁸

This is political oratory, but it cannot be passed off as that alone. Congress was faced with the very real political fact of an entrenched special interest—one that had become economically secure and politically powerful. It could either continue protecting this interest or attempt through some adjustment program to transfer resources out of sugar into more efficient production. The former was cer-

³⁷ Consider Representative Dondero's deference to Representative Chenoweth of Colorado, "The gentleman comes from the greatest beet-sugar-producing area of the United States. If he is satisfied with it, I know I can take his judgment in the matter." (93 *Congressional Record* (House), 8720; July 9, 1947.)

³⁸ 93 *Congressional Record* (House), 8899, 8900; July 11, 1947.

tainly the easier alternative, and in terms of the "short view" probably the only possible one.

Conclusion

Detailed planning like that in the Sugar Act is a very complicated and difficult business. In formulating programs, Congress is faced with a herculean job of compromise. Conflicts of specific interests quickly become apparent, and some decision must be made among them. With sugar, for instance, any number can be listed. The interests of the industry and the consuming public clearly conflicted. Within the industry itself, the seaboard refiners opposed any reduction in raw sugar imports from offshore areas, while continental producers demanded as large a share of the market as they could supply. Among producing groups, there was lively competition for increased quotas, but these could be gained only at the expense of other producers, because a restricted overall quota was considered necessary. A fourth area of discord appeared in the minimum wage provision, continental beet growers attempting to escape this regulation by having it confined to the cane areas. Faced with these conflicting claims, Congress through the Secretary of Agriculture told the sugar interests in effect, "You tell us what you want and as long as you can agree among yourselves we will make it law." Should this procedure be continued, we may well join with those who "have expressed concern lest the tendency of organized groups to put primary emphasis on their own economic interests lead to a dispersive type of group utilitarianism which completely transforms the political arena into a 'battle royal of interests'."³⁹

Similar difficulties are also inherent in the administration of economic programs. The extent of the discretionary power given the Secretary by the Sugar Act has already been indicated. In exercising it he will be faced by the same conflicts of interests and consequent pressures as Congress. Specific provisions will necessarily have to be administered in the light of conditions existing at some future time, and because of this, Congress is unable to set up adequate rules. Whether or not it is considered a danger, increasing bureaucratic control and discretion is implied, and the problem of selecting competent administrators considerably magnified.

³⁹ Merle Fainsod and Lincoln Gordon, *Government and the American Economy*; (New York; Norton, 1941), 45.

Finally, the value conflicts that are inherent in the sugar program point up the necessity of a careful formulation of the value premises underlying policy decisions. The Sugar Act is but one of a number of pieces of legislation that both perpetuate inefficiencies and stifle freedom of enterprise. Its rationale is incompatible with the pronouncements of major American policy-making organs. It became law through legislative procedure that violates the most basic American political concepts. The resolution of these fundamental conflicts before they become crystallized into law is an imperative of sound economic policy.

FARM PLANNING AS A BASIS FOR EXTENDING AGRICULTURAL CREDIT

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FOR an agriculture in a stage of transition,¹ credit is an instrument that can make change possible with a minimum of social and physical loss. The effective use of that instrument calls for a lending policy that is broadly conceived, well informed, and carefully executed. With the pressure generated by the accelerating adjustments of post war agriculture, credit for farmers is receiving increasing attention. One aspect of this is the growing acceptance of the principle that agricultural credit should be based on potential earning capacity. However, merely accepting a principle does not create a policy. The gap between the need for effective agricultural credit and the practices of the banking system remains unbridged. The task of this paper is to illustrate the use of farm planning as an aid in closing this gap.

This division is a dichotomy that has a characteristic common to many other institutional problems—the conflict between the static and the dynamic. On the static side is the credit policy of the banking system, a policy that has grown by accretion, nourished by roots deep in tradition. On the other hand are the needs of a dynamic agriculture for which the past is only a point of departure. Thus a policy designed primarily to provide commercial loans for merchandizing purposes is also expected to serve as a basis for financing production facilities operating over a long period in an enterprise where returns are highly variable from year to year. This policy takes the concrete form of credit practices designed to provide loans on liquid assets with a rigid schedule of repayment to be completed within a short span of time. Loans of this restricted application do not provide the kind of credit instrument farmers need to adjust their production to the income and appetites of the world today.

How great the need for such credit may be was illustrated by a recent *Journal* article written by Professor Theodore Schultz.¹ He showed that the productive efficiency of American agriculture *vis a vis* European agriculture and American industry was lagging far

¹ Theodore W. Schultz, "How Efficient is American Agriculture?" *This JOURNAL*, 29: 644-658, August, 1947.

behind. Perhaps more significant was the variation in the efficiency between the various regions of the United States. This is not the place to discuss the selection and weighting of factors considered there. It is enough to recognize the significance of the general relationships. The implications for American agriculture, and agriculture in relation to the other elements of the American economy, are obvious.

The right kind of credit would be a powerful lever in raising the effective economic and social output of agriculture in the United States. The problem, however, is twofold; first, to define what the right kind of credit may be; and second, to determine whether the American banking system will or can accept the kind of security on which such credit could be extended. The proposal of Mr. Darryl Francis of the St. Louis Federal Reserve Bank and that of the Louisville Federal Land Bank are indications that this latter problem is not regarded as insuperable by either federal or private credit agencies.

The primary need is to find an accurate measure of earning capacity—a technique for determining what a farmer can and will do with the resources of his farm. These resources do not exist in a vacuum of either time or space. A large part of their value may be obscured by their present inefficient use. Credit properly applied is one instrument that can be used to overcome this inefficiency.

For a proper evaluation of earning capacity it is necessary to outline the more promising alternative development possibilities, estimate earnings under each of these alternative lines of action, and select that best suited to the individual circumstances. This becomes the farm plan—a statement of the combination of enterprises, management practices, capital improvements, and means of financing which offer the most promise for developing the farm resources. Over the past two decades farm planning has acquired a patina of many meanings. In this instance it is essentially a calculus of the present and future marginal productivity of both capital and labor on the farm.

The validity of a loan to make this development possible hinges on the content of the plan and the acumen with which it is fitted to farm and farmer. The content will have meaning in proportion to the specific information available about present resources and their capabilities, the soils, livestock, buildings, equipment, and labor force. Only with a solid background of such information can

one make a realistic appraisal of alternative opportunities on a given farm.

As stated previously, conventional credit policy takes little account of the fact that agriculture is a long-run process with violent fluctuations in short-run yields and prices. Greater flexibility in repayment plans is needed. Objection to such a development comes primarily from a myopic confusion of flexibility and speculation. Credit extended on a flexible repayment schedule can be supported by security as safe as that backing conventional credit. By its very flexibility, such credit can be more reliable in a changing economy. Finally, farm loans adjusted to the realities of production would do much to ease the weight of those upper and nether millstones of agriculture—credit inflation and deflation.

Especially in the early stages of applying a farm plan, a borrower needs to be insulated from the sudden shocks of market or weather. Reasonable flexibility of repayment within a specific time limit would protect the borrower from heavy payments at a time when financial strain would be crippling. If payments are to be postponed under unfavorable circumstances, however, it will be equally appropriate to increase them under favorable conditions. Without a farm plan and a carefully budgeted scheme of application, such flexibility could become merely haphazard—a contest between borrower and lender each seeking the highest advantage.

Frequently farm plans contemplate a chain of adjustments which will take place over an extended period of time. In such cases there is need for a guarantee by the lender to provide specific advances as the work of carrying out the plan progresses. For example, an initial loan for pasture improvement might result in a few years in an increased carrying capacity which would be of little value without additional livestock. More livestock in their turn would require increased barn space. In this instance there might be three overlapping loans contracted at three different periods and with varying dates of maturity. However, unless the farmer had the assurance of getting the livestock and building loans when they were needed, he would hesitate to take the original pasture improvement loan. He would be equally reluctant to borrow at the outset the total amount he would need, especially if he would be required to pay interest on the whole sum. That would merely increase the burden of his obligations without an attendant benefit.

In many states banking regulations stand in the way of promis-

ing future loans. While bankers might agree informally to make such future loans, this is little assurance to the borrower who in carrying out his development program is obligated to make formal agreements for living up to his part of the bargain. Several oblique attacks have been made on this problem, but the only real solution would seem to be to face it directly and try to find a positive solution. For the private banking system a further limitation is the time restriction on mortgage loans. The ten-year limitation of the National Banks eliminates the possibility of making loans to farmers who need more time to establish an efficient productive unit.

Prospects for repaying a loan obviously depend to a large degree on the general relation between agricultural prices and costs. This is true whether a loan is based on a farm plan or not. Most production decisions are based on some sort of appraisal of prospective price relationships; frequently this consists merely of an unconscious assumption that the present situation will continue. If a better judgment is possible, it should be the foundation for appraising alternative possibilities before arriving at the farm plan. Whatever method is used for estimating future prices, it is likely to prove less than wholly correct. Unexpected changes in the general price level may take place, or errors may have been made in determining relative prices. From the point of view of attaining best use of farm resources, errors in forecasting the general price level will not be serious. The economic condition of the farm will have been strengthened regardless of the price level. This offers little consolation, however, if debts contracted on the assumption of continuing high prices must be repaid at low prices. Nevertheless, the possibility of such an eventuality should not serve as an excuse for avoiding all investments to increase efficiency during periods of high prices. Making loans only as rapidly as needed will prove a safeguard in meeting this problem.

The use of farm planning as a guide to wise extension of credit is illustrated below for three New England dairy farms.² In each case the procedure has been as follows:

1. Make an inventory of the physical, human, and financial resources of the farm, including a soils map.
2. Observe the present organization of the farm business—acres and

² These plans are based on a dairy farm management project being conducted under the direction of Professor John D. Black of Harvard University in cooperation with the New England state colleges and agencies of the U.S.D.A. The assistance of John H. Peasley, Jr., in planning these three farms is acknowledged.

yields of crops, numbers and production of livestock, production methods followed, receipts and expenses.

3. Outline the more promising changes or alternative organizations, and estimate probable receipts, expenses and net income for each. (In comparing alternatives in the following examples, costs were figured at 1943-45 levels in each case; prices received were selected to reflect reasonable relationships among commodities, at the general level of 90 to 100 percent of parity with the 1943-45 costs.)
4. The judgment and preference of the farm operator are the final criteria of the alternatives which seem best suited to be a basis of a plan for development of the farm. Full weight is given to non-monetary factors as well as to differences in cash income. The final selection becomes the farm plan.

Farm A

This is a small dairy-poultry farm operated by a young man for his mother. Annual net farm income (\$757) under the assumed prices hardly promises a satisfactory future for the operator. He is presently milking eleven cows and purchasing most of the replacement heifers. The cows produce an average of about 6,000 pounds of 4 percent milk with a grain ration of 3,600 pounds per cow. It has been his practice to start 600 pullet chicks each year along with 50 cockerels. The 400 hens kept on the average during the year lay about fourteen dozen eggs per hen. During the war years half of the eggs were sold for hatching.

This farm has 46 acres of land, 18 acres of which are used for hay and pasture. The remainder is cut-over woodland. In addition to this, 30 acres of old meadow land are rented and used as open pasture. Each year about 3 acres are seeded to clover with a nurse crop of oats. Millet is used as emergency pasture. In the winter of 1945-46 the operator found it necessary to purchase 20 tons of hay, and in the winter following, this was reduced to 12 tons.

There is no water system in the barn, with the result that water must be hauled to the stock during the winter. The operator has a wholly inadequate supply of machinery consisting of two old trucks and a dump rake. He depends on custom machinery for plowing and haying. An income of \$200 for off-farm work with the trucks about equals the cost of this custom work.

Neither the capital nor the labor resources of this farm are employed efficiently. The prime needs are better roughage, increased milk and egg production, and more equipment. Above all is the dominating condition that additional investment must be held to

manageable size. To break this circle of inadequacies and provide an ample opportunity for the effective use of capital and labor, comprehensive planning is necessary.

All farms operate on some kind of plan, even though in some cases the pattern seems to be one of studied chaos. Given a reasonable capacity for management on the part of the operator, the speed with which a higher level of efficiency can be reached on this particular farm depends on the content of the plan and the availability of the right kind of credit. If both the farmer and lender are going to undertake the risk of credit for developing this farm, it is necessary to draw up a plan spelling out both orderly development and the limits of flexibility within which the plan can be applied and financed.

In a very real sense, the plan is the security for the loan as it establishes the means by which the loan will be repaid. For this reason the plan must be complete, assessing both the physical and economic aspects of the farm. A soils map, a conservation plan, or an accounting system is not enough. The plan must be a synthesis of all of these with the various factors properly weighted. Furthermore, it must permit the necessary adjustments and the development of alternatives should unpredicted future changes occur.

On this farm, solving one problem will help to solve the others. The farmer considered the possibilities of increasing the herd and the laying flock. It was decided that the present number of hens and cows could earn a large enough income if their production could be increased while at the same time the costs of that added production were reduced by developing the land resources to provide the present herd with high quality roughage. Alternate plans calling for an increase in livestock would have added greatly to the investment for land and buildings. It was concluded that receipts from the sale of eggs for hatching would hardly exceed the additional expenses for producing hatching eggs, as the prospects for selling a large proportion of the output for hatching are doubtful in this particular situation.

The proposed plan calls for milking the same number of cows as at present and raising all replacement heifers. The hatching-egg business is to be dropped and 50 more pullet chicks started each year. Annual egg production will be increased one dozen eggs per layer by better management. Elimination of off-farm work (except for exchange labor) will help make better herd and flock management possible. The cost of installing a water system in the barn will

be quickly repaid by increased milk production and greater labor efficiency. The acreage of cropland is to be increased $6\frac{1}{2}$ acres by clearing the better drained and less stony portions of the woodland. The remainder of the woodland will be fenced to prevent grazing, and after restocking will contribute fuel and logs for farm use.

Two fields which are mainly Charlton loam (well drained) will be seeded to alfalfa hay mixtures. Other fields are mainly Sutton loam (imperfectly drained) and will be used for ladino clover pasture. All fields will be reseeded when necessary, probably once in five or six years. Lime will be applied according to soil test and fertilizer purchases will be increased materially. In terms of plant nutrients from manure and purchased fertilizer, the proposed plan will supply 40 lbs. of nitrogen (N), 80 lbs. of phosphoric acid (P_2O_5), and 110 lbs. of potash (K_2O) per crop acre. This compares with 55 lbs. of nitrogen, 43 lbs. of phosphoric acid, and 55 lbs. of potash at present.

This fertilizing and seeding program should produce more and better quality roughage. An increase in milk production or a decrease in grain feeding should follow. The operator will determine the most profitable feeding adjustment after observing the response of his herd to the additional nutrients provided. In the financial estimates it has been assumed that with better roughage and better care, milk production per cow will be increased 1,000 pounds, with a decrease of 1,350 pounds in annual grain feeding.

To make this crop and livestock program effective it will be necessary to purchase new farm machinery. This would include a tractor, plow, harrow, mower, side delivery rake, hay loader, and a water system for the barn. With this machinery, hiring custom work and working off the farm will not be necessary.

Once the plan has been made, it remains for the farmer to secure the necessary funds to carry out the project. In this case the farmer must have credit if he is to proceed. More important, he needs the right kind of credit if he is to proceed successfully.

The amount to be borrowed depends on how fast the plan is put into effect. The additional investment schedule would include:

Tractor	\$1,000
Plow, harrow, mower, side delivery rake	800
Water system	500
Initial lime	350
Stone wall removal and brush clearing	200
Increased young stock inventory	150
	<hr/>
	\$3,000

The additional young stock can be raised from the present herd. The tractor, field equipment, water system, initial lime all need to be purchased very soon. The stone wall and brush removal could be accomplished immediately by hiring a bulldozer, or at somewhat lower cost through use of the farmer's own labor over a longer period of time. The first round of seeding would be completed by 1951 when hay and pasture yields should reach the planned level. Until that time it will be necessary to buy hay in the winter. At that date the full benefits of the plan should be realized and income estimated on the basis of normal yields and prices should be \$1,917 (before deducting payments on the loan).

A tentative schedule of borrowings and repayments was worked out as follows:

Date	Amount borrowed	Payment on Interest (5%) Principal		Remaining debt
March 15, 1948	\$2,650			\$2,650
Aug. 1, 1948	200			2,850
March 15, 1949		\$132.50		2,850
Aug. 1, 1949		10.00	\$200	2,650
March 15, 1950		132.50	200	2,450
March 15, 1951		122.50	250	2,200
March 15, 1952		110.00	500	1,700
March 15, 1953		83.00	500	1,200
March 15, 1954		60.00	500	700
March 15, 1955		35.00	500	200
March 15, 1956		10.00	200	—

In this case notes for this amount could be secured either by a chattel mortgage on stock and equipment or by a mortgage on the farm. The schedule of payments could be carried out only if the proposed plan is prosecuted aggressively and the planned income is actually achieved. For several years it would be necessary for the farmer to hold living expenses to \$100 per month. However, with this schedule, principal payments could be postponed during the early part of the loan if conditions should warrant such leniency, and repaid at the end of the period when such payments are lower relative to income. An insistence on sizeable principal payments before 1952 might impair the ability of this farmer to carry out the plan since until that time he will not have reached a high enough income level. In the event of a crop failure in 1952, a demand for the full \$500 principal payment might have a similar effect. From the point of view of the lender it is important to remember that his

basic security is the most effective and speedy application of the plan. Impatience on his part would give no added security and might ruin the farmer.

Farm B

Until three years ago this 255-acre farm had combined production of ten acres of potatoes with a small dairy herd. Presently it has twelve Holstein cows; six heifers are raised annually for replacements and for sale. The average annual milk production per cow amounts to 6,400 pounds of 3.4 percent milk. Cows are fed an average of 2,500 pounds of concentrates annually. All 31 acres of crop land and 14 acres of open pasture are used to grow roughage for the dairy herd. Four acres are used to produce corn for silage, and four acres are reseeded every year with a nurse crop of oats cut for green feed or hay.

During the war years the owner operated the farm alone with the exception of six weeks hired seasonal labor. The owner's son-in-law has now returned from military service and is working on the farm. The problem is to establish a farm enterprise that will provide both men with a satisfactory family income.

The farm is operated with horses and horse-drawn equipment. Hay is raked with a dump rake and loaded with pitchforks. The barn which will tie up twenty-two head of cows and young stock is in poor condition and badly in need of repair.

There are 210 acres of woodland on this farm. During the war when the owner was working alone, no pulpwood was cut, but with the return of his son-in-law, 16 cords were cut in the winter of 1946-47.

A considerable increase in output will be necessary if this farm is to support two families instead of one. With modern equipment and a reasonably efficient organization many specialized two-man dairy farms in this area are carrying thirty-five to forty milking cows and growing heifers for replacements. On this farm, however, present acreage of cropland and pasture is totally insufficient to provide roughage for so large a herd and the opportunity for adding more land by clearing, leasing, or purchase is limited. In addition, a larger herd would make necessary a capital investment in a dairy barn too large to be considered by the operator at present. The possibility of adding a poultry enterprise was considered, but again the necessary capital investment in buildings and equipment was

a stumbling block. Neither of the men was experienced in raising poultry.

Fortunately, the woodland on this farm provides an important opportunity for profitable employment of farm labor. Good woodland management would permit the annual harvest over the next eight or ten years of 150 cords of pulpwood. Thereafter a sustained yield of one hundred cords annually could be maintained if the cutting were carefully planned. The practice of making frequent partial cuttings on all stands will increase the output and value of woodland production, as compared with infrequent clear cutting. It will also provide continuing profitable employment for farm labor, in contrast to the common practice of making infrequent sales on a stumpage basis.

Under the proposed plan, the herd will be increased to twenty-two milking cows with all of the dairy replacements raised on the farm. To secure adequate roughage for this herd, fifteen acres of cropland in a nearby tract will be rented and both this and the owned crop and pasture land will be heavily fertilized. If this rented acreage cannot be secured on a long term lease, and if it is impossible to buy conveniently located land, it will be necessary when the herd will have reached a maximum to clear some of the woodland for improved pasture. An integral part of the plan is the cutting of 150 cords of pulpwood which will require an additional man for about two months in May and June to help fell trees.

The barn will be remodeled and a larger silo built. A hay loader and side delivery rake will be needed. The team will be kept for work in the woods, but in addition the operator would like to buy a tractor with tillage equipment. (It is doubtful if labor accomplishments can be increased more than enough to offset this added expense for farm power.)

The volume of woods work will be sufficient to justify purchase of a chain saw if the operators decide that use of this tool will result in a sizeable increase in their own accomplishments.

As on the other farms planned, land use capability maps of the Soil Conservation Service and yield estimates of state college personnel provided the basis for the proposed cropping plan. Six acres of corn for ensilage will be grown, with the remainder of the cropland in ladino hay mixture. Fourteen acres of permanent pasture will be cleared of stone and brush and reseeded to ladino pasture mixture. Oats used as a nurse crop will be pastured. This roughage

program will provide good quality pasture for five or more months. Earlier cut legume hay made possible by better equipment will provide better winter roughage. It is expected that milk production can be increased by 1,300 pounds per cow, with a continuation of the present rate of concentrate feeding.

Receipts and expenses under the present and proposed plans are summarized below. It should be remembered that the "present" organization is a one-man business; the "proposed" is a two-man business.

	Present Plan		Proposed Plan	
	Quantity	Amount	Quantity	Amount
<i>Receipts</i>				
Milk (3.4% b.f.)	710 cwt.	\$2,200	1,640 cwt.	\$5,085
Milk cows	3	375		
Cull cows	3	240	6	480
Bob calves	5	20	14	56
ACP refund		40		40
Peeled pulp		—	150 cd.	1,800
Total		\$2,875*		\$7,461
<i>Expenses</i>				
Cow grain	300 cwt.	\$ 900	550 cwt.	\$1,650
Other grain	130 cwt.	390	140 cwt.	420
Labor	6 weeks	180	10 weeks	300
Seed		40		100
Fertilizer & lime		90		676
Auto & tractor		50		150
Repairs and upkeep		100		125
Taxes		260		300
Misc.		220		295
Added depreciation				220
Total		\$2,230		\$4,236
Net farm income		\$ 645*		\$3,225

* The annual value of infrequent stumpage sales of accumulated woodland growth is not included. It would not exceed \$150 to \$200.

To realize this plan an additional investment of \$6,600 is anticipated. This investment would be divided as follows:

Barn repair and added silo	\$2,000
Tractor and tillage equipment	1,500
Hay loader and side delivery rake	500
Increased livestock inventory	1,500
Land clearing and liming	500
Chain saw	500
Improvement of woods roads	100

This debt could be amortized in thirty years at 5 percent interest with annual payments of approximately \$425. After the income of the proposed plan is achieved, such payments would leave about \$2,800 a year for family living expenses. However, it would be four or five years before the proposed level could be reached. As in the case of the first farm, payments to retire interest and principal should be indicated tentatively with provisions for increasing or reducing the payments according to year-by-year income results. This leniency on the part of the lender should be balanced against the fact that practically all of the money lent will be used in such a way as to increase the value of his security.

Farm C

The final farm is the largest of the three. It is a combination of five enterprises—poultry, dairy, canning crops, sheep, and wood products. The home farm consists of two parts totaling 165 acres. Another tract some distance from the home farm contains 6 acres of crop land, 15 acres of pasture, and 129 acres of woods. The operator uses the open land and has part interest in the woodland. Seven additional acres of crop land are rented.

Each year approximately 3,000 straight-run chicks are started. An average of 1,000 layers are kept to produce 10,000 dozen eggs for the commercial market and 4,500 dozen sold for hatching. An incubator on the farm is used to hatch the chicks started and an additional thousand which are sold.

The dairy herd is made up of nineteen Holstien cows and about the same number of young stock. Usually half of the heifers raised are sold as milk cows. Average annual milk production is estimated at 8,700 pounds of 3.6 percent milk per cow on a grain ration of 3,000 pounds per cow.

The farm flock of sheep consists of 70 ewes producing 40 or 50 lambs for sale each year.

Twenty-five acres of sweet corn and peas for canning are grown. The peas follow the sweet corn in rotation and are used as a nurse crop for new seedings of ladino hay mixture. In 1946 there were 32 acres of ladino clover and 18 acres of hay and cropland pasture. Approximately 100 acres are in open pasture and 155 acres in woodland. Some of the woodland is pastured. An average of 25 cords of pulpwood and five cords of spool wood are sold annually. The woodland also produces fence posts, fuel wood, and some lumber for the farm.

The labor force is composed of the operator, one-full-time hired man, and the operator's son and daughter who are in high school and work on the farm in the summer. The son helps with the chores the year round. Day labor equivalent to one man for half a year is hired. This farm is supplied with a tractor and tractor equipment. Hay is harvested with a side delivery rake and hay loader.

Enlarging the dairy herd and improving the pasture offer the most promising opportunities for development of this farm. Sheep have been kept to utilize low quality pasture which was not suitable for the cows. Almost 50 acres of pasture near the barn is capable of growing ladino clover pasture mixture. With this pasture seeded to ladino, it will be profitable to substitute more dairy cattle for the sheep enterprise. The barn is now being remodeled to provide tie-ups for 32 cows. When that portion of the barn which is now used for sheep is also converted to cow stable, the barn will hold 50 cows. If hay is baled or chopped there will be sufficient hay storage for the enlarged herd. The operator would like to use some grass silage, but the present square silos are in poor condition and will need replacement if grass silage is to be preserved.

It was decided to eliminate the sheep enterprise. To assure roughage for the 50-cow herd, the canning crops will be reduced to seven acres of peas. Tillable land will be increased to 124 acres by clearing stone from permanent pasture, plowing or bog harrowing, fertilizing and seeding to ladino mixtures. Fifteen acres of corn silage will be grown. The peas will follow the corn and be used as a nurse crop for ladino seedings. Additional ladino seedings on land not used for corn will be made annually in a nurse crop of oats to be pastured. A fertilizer and liming program will be developed to maintain production of high quality roughage.

With the new plan the hired labor will have to be increased to two men. To accommodate the additional man, a new tenant house will be built. Two or three years after the present remodeling of the barn is completed eighteen more tie-ups will be added. Also one new silo will be built immediately, and a second will be needed before the herd has grown to the proposed 50 cows. In order to save labor and harvest roughage within the optimum time, a forage chopper will be purchased. An added advantage of this machine will be the space saved in storing hay. The important part of this aspect of the plan is the synchronizing of the development of the roughage program with the growth of the herd. This systematic growth also has an important bearing on the credit program.

The plan provides for development of the farm woodland through an orderly harvesting of trees. This will promote maximum growth and a high quality residual stand that will be a dependable and permanent supply of forest products for the farm and for sale.

The plan calls for the not inconsiderable investment of \$17,500 on top of a current debt of \$6,000. The important point is that the maximum debt at any one time is \$16,500 including the old debt, a reasonable amount in view of the size and productive capacity of the farm. The additional investment is estimated in the following way:

Tenant house	\$ 5,000
Increased livestock inventory	4,250
Barn remodeling	3,000
Two silos	2,000
Chopper, blower and supplementary equip.	2,000
Added milk cooler	400
Clearing, liming and reseeding pasture	1,000
Stone wall removal	100
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	\$17,750

After deducting 5 percent interest on this investment the net farm income of the proposed plan is estimated at \$1,985 above the present. The additional income would pay for the new investment in nine years. This, however, is important. To keep his loans within reasonable bounds the farmer borrows the money only as he needs it. The lender would have to realize that unless at the time of the initial loan a promise were made that the whole amount would be forthcoming, the farmer would not be justified in starting to carry out the plan. A half completed plan would be of no value to him. The plan calls for borrowing \$13,000 for land improvement and buildings, financing the raising of five or six head of cattle yearly out of current income, and holding living expenses to less than \$4,000 per year.

A tentative plan for borrowing and repayment was worked out as follows.

The financing of the plan will need to be modified from year to year in the light of changing prices and crop yields. In some years it will be possible to make payments larger than those planned, in others it may be necessary to permit some deferment. However, this plan allows the farmer to get started with his new project before calling for repayments which his income would not at that time justify. It is adjusted to the income stream, and for that reason

Date	Amount borrowed	Payment on		Current debt
		Interest	Principal	
Dec. 31, 1947				\$ 6,000
Jan. 1, 1948	\$1,500 (barn)			7,500
Jan. 1, 1949	9,000 (silo, chopper, tenant house, land clearing)	\$375		16,500
Jan. 1, 1950		825		16,500
Jan. 1, 1951		825	\$ 500	16,000
Jan. 1, 1952	2,500 (barn, silo)	800	500	15,500
Jan. 1, 1953		775	750	14,750
Jan. 1, 1954		737.50	1,000	13,750
Jan. 1, 1955		687.50	1,250	12,500
Jan. 1, 1956		625	1,500	11,000
Jan. 1, 1957		550	2,000	9,000
Jan. 1, 1958		450	2,500	6,500
Jan. 1, 1959		325	3,000	3,500
Jan. 1, 1960		175	3,500	—

gives greater assurance that the plan can be successfully carried out than would a requirement calling for equal annual payments.

If the right kind of credit is available, planning can increase the efficiency of capital and labor on the three farms cited. They are not isolated examples. Techniques similar to those outlined here might, with minor alterations, be applied generally. However, a wide use of farm planning in this sense will need to be supplemented with a credit policy which will translate the plan from paper to reality.

Over the past several decades there has been a continuing effort to find a credit policy which will release the agricultural capacities and resources held in check by insufficient or ineffectual capital. The pressures on agriculture created by the rapidly advancing development of our industrial and commercial resources make increasingly urgent the need to find a way of bringing all of the productive factors of the economy into balance.

There are several specific rigidities in present credit practices which stand in the way of meeting the needs of agriculture. In the examples cited they could be overcome by variable payments on loans, postponing initial payments until production gets under way, and assuring future loans as needed. At present the need of the second farm for a long-term production loan would probably have to be met by a public rather than private agency.³

³ Cf. "The Future of Government in the Farm Mortgage Field," by John D. Black, *Journal of Land and Public Utility Economics*, Vol. XXIII, No. 1, pp. 1-11, Feb. 1947.

From the point of view of the lender, the major obstacle to be overcome in achieving this flexibility is the belief that loans of this type are not properly secured. The farm plan is offered here as a device that spells out just what such security is, and channels the effort of the farmer into the productive work which for any loan is the only real security from all points of view. It substitutes for the illusory security of foreclosure the real security of an increased earning capacity.

In general, the three cases used here illustrate the point that credit, if it is based on a sound farm plan, is an essential tool in providing for an efficient and dynamic agriculture. Whether or not it can be used effectively depends on whether the current credit pattern can be made sufficiently flexible to be realistic. For farmers with well-conceived plans, the function of credit in promoting a fuller use of agriculture's capital and labor resources is also its security.

THE HEART OF CHINA'S PROBLEM, THE LAND TENURE SYSTEM

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I

IN THE present nation-wide predicament, the main difficulty with which China is confronted is the steady worsening of the agrarian situation. Actually this has for a long time been the core of political agitation and civil dissension. The ever-increasing population pressure on resources has intensified the seriousness of an already acute problem. Political factions and their campaigns in China today are basically an organized struggle between the land-owning gentry and the landless peasantry to gain power.

It is argued that, since the gravity of the farm land tenure situation in China is recognized, one need not be alarmed, because the percentage of tenancy in China is not especially high and the trend of its growth has in the last thirty years been low in comparison with the upward curve in the United States whose proportion of tenants to all other farm operators soared from 25.6 percent in 1879 to 34.5 percent in 1945. However, it must be remembered that a numerical comparison, such as this, can help very little in clarifying the underlying fundamental differences of the tenancy problems between these two countries.

An elaborate estimate regarding both the percentage and trend of farm tenancy, calculated by the National Agricultural Research Bureau, in 1937, shows that, of different tenure classes in 1911, the tenants constituted 28 percent, part owners, 23 percent, and full owners, 49 percent. Twenty-five years later, in 1937, the percentage of tenants had increased to 30 percent, part owners, to 24 percent, while the percentage of the full owners had shrunk to 46 percent.¹ Still later in 1939, when the provinces with higher proportion of owner peasants in North China and Manchuria were lost to Japanese, the percentage of tenants in the fifteen provinces of "Free

¹ Data from the Statistical Bureau, *A Statistical Analysis of Farm Tenancy Systems in China* (1942). The complete series of figures estimated and expressed in percentages is as follows:

Tenure class	1911	1931	1932	1933	1934	1935	1936	1937
Tenant	28	31	31	32	29	29	30	30
Part owner	23	23	23	23	25	24	24	24
Full owner	49	46	46	45	46	47	46	46

China" rose to 38 percent, part owners, to 27 percent, while the percentage of full owners dropped to as low as 35 percent.²

During recent war years the mounting curve of tenancy had turned downwards a little bit because since the wartime inflation had in 1939 taken place, those tenants who mortgaged their lands took advantage of the depreciating currency to pay back the debt and redeem their pledged farms. Take the province of Szechwan for an example: In 1911, the proportion of tenancy was 51 percent, in 1933 it culminated to as high as 59 percent, the highest of all provinces in the country, while in 1940 it declined to 48 percent, the lowest level in this region of China for over thirty years.³

The decline of farm tenancy in the part of "Free China" can not be taken superficially to mean that inflation has benefited the lot of tenants. A very lucky few of the encumbered peasants may have cleared their debts and resumed the owner status. In fact, the agony of the majority of tenants has been aggravated by the shifting of war burdens from the landlords to them. A survey made in fourteen provinces in "Free China" indicates that from 1937 to 1941 all sorts of rents on almost all types of land had gone up.⁴ The steady mounting of crop rent and share rent cannot be interpreted as the results of the depreciation of monetary currency. It is amazing to note that after 1941 the year the government proclaimed the change of farm tax system from levying in money to levying in kind, rents immediately jumped up as reported by many newspapers. Furthermore, in the process of inflation, although reliable indices are still lacking, it is safe to say that the price of agricultural products has increased much less than that of manufactured goods.

A striking phenomenon with reference to regional distribution of farm tenancy in China is that the richer the area the higher the proportion of tenancy. It was estimated that the percentages of tenure classes in various regions are: (1) in the provinces lying outside the Great Wall (including Manchuria), 51 percent of the peasants are full owners, 19 percent part owners, and 30 percent tenants; (2) in the Yellow River Valley, 69 percent full owners, 18 percent part owners, and 13 percent tenants; and (3) in the regions

² Cf. Chang Pei-yu and Wang Yin-yuan, *Farm Tenure Problems in China* (Chungking: The Commercial Press, 1943), pp. 24-25.

³ The figures were cited from *The Tenancy Systems in Szechwan*, a report of a field survey made and published by the Farmer's Bank of China, No. 7, 1941, pp. 3-6.

⁴ This statement was based upon an official report made by The Council for Improving Agricultural Products which, in 1941, surveyed 14 provinces in the part of "Free China."

of both the Yangtze and Pearl River valleys 32 percent full owners, 28 percent part owners and 40 percent tenants.⁵ John L. Buck's survey produces exactly the same results. In the wheat region of the North, over three-fourths of the peasants are full owners, while in the rice regions of the Middle and the South less than two-fifths are full owners. On the other hand, tenants in the rice regions constitute one-fourth, while part owners claim another one-third of the farming population.⁶

These regional differences in proportion of tenancy are entirely due to economic causes. In the northern provinces (excluding the frontier), the original home of Chinese agriculture, the yield of a farm is too low to be shared by both a landlord and a tenant. Praise for the high percentage of ownership under the condition of low production would be very deceptive if not ironic. In the rice regions, irrigation makes production of land fairly fruitful and certain. It is the surplus in agriculture which invites investments from urban capitalists or bureaucrats and, therefore, "the commercialization of economic relations has proceeded further."⁷ So the high tenancy in the South indicates clearly that the surplus in rice cultivation goes to enrich the urban absentee landowners rather than to remain where it is produced to be utilized to improve the level of living of the already poverty-stricken peasants.

II

Considering the enormous number of the peasant population and relatively meagre natural resources, China has long been overpopulated. Since the peasants who badly need land for cultivation are so numerous and land is difficult to rent, the dealings between the landlord and tenant cannot be on the basis of equal standing. Their relationship resembles the old manor-lord and serf. In many parts of the country, an old custom that the tenant has to pay tribute as gifts to his landlord on such occasions as the New Year's Day, the fifth of May and Mid autumn festivals, and the landlord's birthday, is still observed. Under some disguised or transformed forms, the existence of a corvée system is also clearly traceable. Under this system the tenant in the interior goes to work without

⁵ The figures were estimated by Chang Tsin-yi in his article "Some Data on the Agricultural Tenure Problems in China," *Statistical Monthly*, II, 6 (June, 1930).

⁶ John L. Buck, *Land Utilization in China* (Shanghai: The Commercial Press, 1937), pp. 194-195.

⁷ R. H. Tawney, *Land and Labour in China* (London: George Allen & Unwin, Ltd., 1932), p. 34.

pay for the landlord for a certain number of days in a year. In some backward regions, the poor tenant leases land by paying his own labor service as rent. This system, though not common, closely corresponds to the share cropper arrangement in the "Deep South" of the United States. All of these feudal heritages tend to prove the remark made by J. B. Tayler that "these isolated villages of illiterate peasants are the conservative strongholds of China's ancient life."⁸

Usually, however, just as in the United States, the tenant pays grain or money as rent. The principal forms of arrangement can be grouped as cash rent, crop rent, and share rent. In recent years, crop rent has become the most prevalent and cash rent the least. Generally speaking, share rent is commonly practiced in the wheat region of the North and crop rent in the rich rice area of the Middle and the South.⁹ Owing to the greater element of risk in agriculture, a standing crop rent in the North would hardly meet the unstable farm production from year to year. Besides, there are some intermediate forms of renting arrangement carried on in various parts of the country. For instance, in the lower Yangtze Valley the rent is usually regulated in terms of quantity of rice but payment is made in money according to market price.

With regard to the rate of rent, J. L. Buck is right in saying that the tenant gets too little and the landlord too much.¹⁰ The rate of crop rent varies from as low as one-fourth to as high as two-thirds of the farm principal products. It is generally agreed among investigators that the rent absorbs approximately fifty percent of the tenant's annual farm produce. Share rent is generally slightly higher than crop rent.¹¹ In collecting such an amount of rent, the landlord is by no means responsible for providing seeds, fertilizer, tools, or the working animal; if he does furnish something, a custom which is rarely known to the South of the Yangtze but which is

⁸ J. B. Tayler, *Farm and Factory in China* (London: Student Christian Movement, 1928), p. 16.

⁹ A survey aimed to discover the proportion of the three renting systems in 1934 by the National Agricultural Research Bureau, Nanking, shows that crop rent constituted 51 percent, share rent 28 percent, and cash rent 21 percent. Another survey, made by the Council for Improving Agricultural Products in 1941, reveals that crop rent formed 59.9 percent, share rent 34.4 percent, and cash rent 5.7 percent. The decline of cash rent is chiefly due to war-time depreciation of monetary currency.

¹⁰ Buck, *Chinese Farm Economy* (Chicago: University of Chicago Press, 1930), pp. 145-146.

¹¹ For statistical reference, consult *Statistical Monthly*, II, 5 (1920), published by the Legislative Yuan.

considerably prevalent in the lower Yellow River Valley, he ordinarily charges for this.¹² In general, the rate of rent is low in the North, moderate in the lower Yangtze Valley, but exorbitantly high in the fertile Red Basin of Szechwan and also the delta region of Pearl River.¹³

Rent represents only a part of payment that a tenant has to make to his landlord in leasing a farm. In almost every corner of China, a payment of a considerable amount of cash made by the tenant prior to utilization of the leased land is known as the deposit system. This payment will be kept by the landlord as a security fund as long as the tenant remains. In case the tenant fails to render a part or the total of the agreed rental at the time due, it is understood that the landlord is at liberty to have the unpaid sum deducted from the deposit and eject the tenant by returning what is left. This system which is fairly prevalent in China has barred many impecunious peasants from renting farms.¹⁴

As far as the security of tenure is concerned, the deposit system is not entirely lamentable. By paying a large sum of money as a pledge, the tenant's position with reference to ejection and bargaining is relatively strengthened, especially when the landlord is not wealthy. However, a more secure form of tenancy is "the permanent leasing system." Just how this system developed is a matter of speculation. It must have emerged and developed from different causes in different regions.¹⁵ Under this arrangement, the

¹² Cf. Chen Cheng-mo, *Rent in Various Provinces of China* (in Chinese), pp. 102-103.

¹³ In order to demonstrate the regional differences of the rate of rent, The National Agricultural Research Bureau converted the payments of crop rent and share rent into monetary unit based upon the prices of agricultural products after the period of harvest in 1933. The results were as follows: in the provinces north of Wei River and Yellow River, the rental per *mow* was \$3 or less in Chinese currency; in the regions along the lower Yangtze Valley, the rate amounted from \$3 to \$5; and in the southern parts of the country, over \$5. For further reference, consult *Crop Report*, III, 4 (April, 1935).

¹⁴ A survey made in 1935 in 395 *hsien* of 23 provinces by the Bureau of Statistics, the Legislative Yuan, shows that in 169 *hsien*, or 47 percent of all *hsien* surveyed, this deposit system existed. How prevalent of this system as against other renting arrangements can be illustrated in the light of the following percentages: In the northeastern region, it constituted 45 percent, in north China, 29 percent, in central China, 63 percent, in eastern China, 65 percent, and in the southwestern part, 85 percent.

¹⁵ The establishment of the "permanent leasing system" is by no means due to any single cause. For instance, in the southern part of Kiangsi province where the author made an investigation on farm land tenure situations in 1936 and found that this type of dual ownership which has existed in this region for centuries is a result of the following factors: (1) The tenant's ancestors had done a great favor to the forefathers of the landowner. As a token of gratitude, the landlord promised to the

so-called "bundle of rights" in landed property is split into two: the proprietary right and the usufructuary right. The landowner possesses the former and the user or tiller, the latter. The terms for these two separate rights are various in different parts of the country. For instance, the proprietorship is usually referred by the peasants as "host right," "subsoil right," or "bone right" and the usufruct, "guest right," "surface right," or "skin right"; all are self-explanatory. In no way can the tenant be evicted by the landlord even though the proprietorship may have changed hands from one person to another. In many cases he enjoys the freedom of subletting, mortgaging, or even selling in part or whole of his ownership, the usufruct. The landlord's right is confined to collecting a small fixed amount of rental from year to year.¹⁶

Curiously enough, this permanent type of tenancy prevails both in the frontier regions as well as in the fertile, well settled areas. Under the auspices of the Land Commission in Nanking a nationwide survey was made in 1935 on various phases of land problems. With respect to the ratio of the permanent leasing system against all other arrangements, long term or short term, it reached as high as 78.7 percent in Chahar and 94.0 percent in Suiyuan; both provinces lie outside the Great Wall. In the lower Yangtze Valley, the two prevalent regions were Kiangsu, 40.1 per cent, and Anhui, 44.1 percent. The average of the sixteen provinces was 21.2 percent.¹⁷

Thus much has been said about the permanent leasing system. It must be remembered, however, that this system arouses academic interest more regarding tenure security rather than its real importance warrants. It remains the least prevalent one among all

tenant family the right of permanent leasing without eviction. (2) Many centuries ago, a peasant uprising spread in a neighboring locality. It was the tenant who protected the land from devastation while the landlord family fled away for safety. (3) The tenant had reclaimed the waste land attached to the farm. Having enlarged the original size of the farm many fold, the tenant gained the right of permanently utilizing the land.

¹⁶ Cf. A. Kaiming Chiu, "The Division of rent between Landlord and Tenant in China," this JOURNAL, XI, 4 (Oct., 1929), 651-653.

¹⁷ The high percentage in the provinces outside the Great Wall may be reasonably interpreted as due to the fact that land in these frontier regions is owned by the nomadic Mongol tribes. No legal transaction of land ownership could be made. The permanent leasing system provides the only condition and possibility under which the Chinese peasants agreed to enter, settle, and reclaim the grass land for farming. For further information, see The Land Commission, *A General Report on National Land Survey* (May, 1937), p. 43.

ordinary leasing arrangements. For instance, an analysis of all leasing agreements made in 1935 reveals the following results:¹⁸

Tenure terms	One year	2-10 years	10-20 years	Permanent	Unfixed
1934	25%	27%	8%	11%	29%
1924	23%	27%	10%	12%	28%

Since the unfixed term is actually run on the year-to-year basis, it is quite obvious that more than half of the Chinese tenants will be in constant fear of being ejected from their rented farms, the only means of maintaining a livelihood. Attention should also be given to the fact that during the ten year period 1924-1934, as indicated on the table, leasing agreements on one year terms had already increased and those on long terms had dwindled. The aggravation of burden on the part of tenant has in recent years been augmented to an unprecedented level due primarily to war-time instability.

Before passing on, a word or two must be said to the forms of the leasing agreements. Roughly two-thirds of the agreements are, according to an official investigation, in written form of lease and the remaining one-third are oral.¹⁹ Agricultural scientists speculate whether a written lease between the landlord and tenant would protect the latter more from unjust eviction and exaction than an oral one. This may be true in the United States. In China, since the landless peasants are mostly illiterates and the local administration has traditionally been held in the hands of the landowning gentry, how can a written lease be of value to the ignorant and long suppressed peasants?

III

In analyzing farm tenancy problems, American writers often assert that there is "an agricultural ladder" through which the hired farm boy can climb up step by step from his residuum position to become tenant, then the encumbered owner, the free owner, and eventually reach the top rung of the landlord or retired farmer. This rise, no matter how possible it may appear to the American farmer, can hardly be realized by the peasants in China.²⁰

¹⁸ The analysis was based on materials gathered in 93 *hsien* of 8 provinces. The Ministry of Industry, *China's Economic Yearbook* (Shanghai: The Commercial Press, 1935), pp. 101-104.

¹⁹ The result of a survey made by the Council for Improving Agricultural Products in 1941 demonstrates that in the 14 provinces surveyed the leasing agreements consist of 65 percent in written form and 35 percent oral.

²⁰ For further reference, consult Shu-Ching Lee, "The Theory of the Agricultural Ladder," *Agricultural History*, XXI, 1 (January, 1947), pp. 53-61.

Let us ascertain in brief the economic opportunities by which the poor landless peasant in China may improve his status. Just how great is the number of China's agricultural laborers is unknown. Not only because of the lack of census but also because of the violent, seasonal fluctuations. The number varies a great deal between the peak season and the slack season in a year. At any rate it is apparent that the farm wage-workers constitute only a negligible minority in the bulk of farming population.²¹

The chance for the agricultural laborer to improve his status depends primarily upon the balance of wages earned against expenditures. In 1939 the National Agricultural Research Bureau went through a careful study of agricultural wages in the part of "Free China." The levels varied from region to region. To take the average figures for example: The payment for a year's labor service was only \$36 in Chinese currency. In the busy season of that year, the farm hand was paid daily 37 cents with board or 61 cents without board. This survey was in fact made in a year when the wage level had already lifted as a result of the beginning of war-time inflation. In 1937, a hired man earned an average wage of 43 cents without board for each day's arduous labor.²² With this meagre income, the farm laborer can hardly meet even his own needs in case he should be hired in peak seasons and stay idle for the rest of the year.

The fate of the tenant and part owner alike is by no means better than that of the agricultural worker. Rent generally absorbs one half of the principal farm product. What is left to him is so little that he may even have difficulty in covering all of his year-round expenses. Though there have been some few who did climb up to the owner status, it must be remembered that such shifting cannot occur without the aid of all of the following conditions: (1) The landlord is benevolent. (2) The land under cultivation must be fruitful and free from famine. (3) The size of the tenant's or part owner's family must be kept small. If it is large, there must be fewer dependent members than adult males who are all hard workers. Thus, the surplus accumulated bit by bit yearly can be used for the purpose of purchasing land.

The owner's position, though stronger than that of tenant,

²¹ Cf. *Agrarian China* (London: George Allen & Unwin, Ltd., 1939), pp. 69-85.

²² Shen Hsien-yao, "Agricultural Labor in China," *The New Economist Fortnightly* (a Chinese semi-official periodical published in Chungking), III, 7 (1940), pp. 150-162.

depends again upon how many labor units he possesses in his family and upon the size and productivity of the farm that he happens to operate. If all these factors are favorable to him, his dream of buying more land to become a landlord may be realized. However, this is rarely the case. Statistical data show that roughly one-third of the peasants hold an area of farm land less than 0.75 acre, one-fifth from 0.75 to 1.50 acres, and one-seventh from 1.50 to 2.10 acres.²³ That is to say that more than 60 percent of the peasants own less than 2.10 acres. A study made in the fertile Red Basin of Szechwan in 1942 indicates conditions even more undesirable. Peasants who own an area of farm land under 0.15 acre constitute 4.1 percent; those who own from 0.15 to 0.75 acre, 37.6 percent; those who own 0.75-1.50 acres, 28 percent; and finally those who own land 1.50-3.00 acres, 20 percent.²⁴ In summary, about 70 percent of the peasants in this particular region possess farm area of less than one and a half acres and almost 90 percent, three or less than three acres.

In view of the social and economic situations, the peasants in China have been caught in a helpless dilemma. As far as any individual family is concerned, to procreate more children appears to be the only hope of securing and augmenting the family's labor force, of saving aged people from starvation, and also of bidding fair to enrich the family by operating a large area of land. However, when one takes the peasantry as a whole, one finds that this idea of encouraging reproduction of offspring to an unlimited number will inevitably lead to multiply the farming population and subsequently to contract the already minute size of farm holdings. Having gone through these vicious cycles for generations and even centuries, most of the Chinese peasants become the so-called "proletarian proprietors" whose life is wrung with agony and hardship in struggling for existence with poor equipment and long-experienced but backward methods of cultivation against merciless nature.

IV

The picture of the climbing of the agricultural ladder so far delineated seems very discouraging and dismal. This does not, of course, deny that in the toilsome farming operation in China, there

²³ The Land Commission *op. cit.*, pp. 22-26.

²⁴ Wang, Chin-Chuang, "A Study on Farm Ownership of Cotton Farms in Szechwan," *The New Economist Fortnightly*, X, 2 (November, 1943), pp. 30-38.

are the very lucky few who have succeeded in acquiring, by rare chance, both workable area and superior grade of land. A shifting of socio-economic status from the hired man to tenant and to full owner has taken place within one generation.

Aiming specifically at finding the possibilities that a Chinese agricultural laborer has to improve his tenure rank, an elaborate and illuminating study was in 1934-35 made by the Department of Agricultural Economics of the University of Nanking. The results are as follows:²⁵

Province	Agricultural laborer to tenant		Agricultural laborer to part owner		Agricultural laborer to full owner	
	Per-centage	Age	Per-centage	Age	Per-centage	Age
Honan	6.5	32.8	0.2	40.9	0.9	46.7
Hupei	6.1	32.2	1.3	42.4	0.3	48.4
Anhui	9.3	29.8	1.9	40.4	0.8	50.0
Kiangsi	4.7	28.8	1.0	39.5	0.7	46.0
Average	7.0	30.9	1.6	40.9	0.6	48.1

What makes this study valuable and significant is that it is the first attempt in this line of research made. Furthermore it reveals a hitherto unknown fact important to all social scientists. According to the statistics listed in the table, the chance for an agricultural laborer to rise to the status of tenant is 7.0 percent at the age of 30.9; for him to climb to part ownership, 1.6 percent at the age of 40.9; to full ownership, 0.6 percent at the age of 48.1. In other words the new recruits in farming have to keep on working from boyhood to the age of 31, and then seven out of a hundred of them will have the opportunity of raising their status to that of tenantry. It takes another ten year period of hard work to rise to part ownership, but the chance is only three out of every two hundred of them, and to shift from part to full ownership, not only seven more years of toil are necessary, but the possibility drops to one out of every two hundred! In comparison with the tenure situations in the United States, although American analysts have in recent years become alarmed at the upward trend of tenancy (the tendency has actually reversed since 1935), still in 1938 almost two out of every five American farmers advanced from tenantry to

²⁵ The University of Nanking, *Tenancy Systems in Honan, Hupei, Anhui, and Kiangsi Provinces, a Survey Report*, pp. 37-39.

ownership or from the status of a farm hand to tenantry or ownership.²⁶

It is because of the veritable hopelessness of climbing the ladder through the ordinary farming practice, that ambitious but destitute rural youths, who are eager to have their abominable status improved, often abandon agriculture as a way of living altogether and search for other opportunities. A number of them, armed with meagre capital, become petty peddlers, traders, or small shop keepers; others, handicraftsmen and urban factory workers; still others join the sizable army of coolies in trade port cities. But a great number of them, ostracized from their native communities by the peasants as good-for-nothing vagabonds, place themselves beyond the reach of law. They join the soldiery (which is a law-breaker rather than law-keeper in China), banditry, and, in some particular regions, opium smuggling gangs. Coupled with the decline of handicrafts and subsequently the worsening of peasant economy in general, the exodus of rural population has long proved to be a threat to peace and order.²⁷ It is apparent that the armed forces, with which the warlords waged wars one against the other for more than two decades after the national revolution in 1911 were mainly recruited from the source of the landless and jobless peasants.

Despite the fact that the impoverished peasants remain a grave menacing force to economic progress and political stability, the present national crisis, manifested in military maneuvers and civil strife between the two political rival factions, goes much deeper than that of the past. With the deterioration of the farm tenure situation as the centre of conflict, one faction representing largely the vested interests of the landowning gentry has inherited the position of monopoly of political power and civil administration from tradition, and the other, by inciting and organizing the long suppressed and now restless peasantry, has made it a formidable military and political buttress in its struggle for power. The Communist movement in China is based largely on traditional agrarianism, the fundamental idea of which is that "land belongs to the tiller."

Whenever and wherever the Communist guerilla force arrives, a program of social reforms centering on land redistribution will be

²⁶ Data from a farm census report released in 1938 by the Agricultural Division, T-7, Bureau of Census, U. S. Department of Commerce. The survey covered 3,000 farms in selected counties of 40 states.

²⁷ Cf. *Agrarian China* (London: George Allen & Unwin, Ltd., 1939), pp. 224-258.

immediately put into practice. All large absentee land holdings are confiscated and broken into small parcels, and all parcels are equally allotted to all members of the district, including the remaining landlords. From the standpoint of the agricultural ladder, the destitute peasants have all in one day gained the status of land ownership for which they might have struggled for years or even generations and failed to reach. This shifting is undoubtedly to their great gratification and satisfaction. It is primarily due to this magic that the Chinese Communists have transformed the conservative, peaceful, and illiterate peasants into redoubtable, vigorous and even fanatic warriors.

Since the Communist Party in China has taken such a revolutionary measure marching for the peasant support, the Kuomintang, the ruling party, is rather forced to stand for the status quo, although its proclaimed tenets and platform differ very little from the social reforms adopted by the Communist. But it is astonishing to note when the Nationalist force retakes a district, local administrators, landlords and usurers quickly follow in and lose no time in regaining their former positions and resuming their prestige and power. The peasants who have not gone with the Communist guerillas will have to be satisfied with the status they had before the "agrarian revolution" and live again under the mercy of their former "lendlords" and landlords.

Bearing the farm land tenure situation in mind, one easily understands the real difficulty with which China is involved in her present crisis. So long as the majority of the peasantry are forced to live in dire privation with no hope of relief, there will always be unrest, dissension and uprising, communist or non-communist. Had the old Kuomintang kept its promises seriously and honestly and carried out in the past twenty years even a moderate land reform in grappling with the worsening tenancy problems, the Communist movement, which is in direct contradiction to China's age-old and deep-rooted familistic ideals, would have lost out in politics, especially when the nation's war with Japan ended in victory and the restoration of normal life might have been secured. However, if that regime in power continues to act blindly and resorts to military suppression and conquest as the sole means of solution, it will be no surprise that what had happened in France in 1789 and in Russia in 1917 may also happen in China in the near future.

DATA NEEDS FOR AGRICULTURAL RESEARCH AND MARKETING*

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DATA relating to the production and marketing of agricultural products have been prepared for many years. A multitude of bureaus and divisions in federal, state and local public agencies, and many private organizations, such as trade associations, have contributed to the output. We believe that, along with the increasing volume there has been an upward, though far from uniform, trend in quality. Certainly the fields which are cultivated have continued to broaden.

The movement toward more and better data has been encouraged and stimulated by many members of the American Farm Economic Association. Statistical agencies have frequently invited the help of economists and production and marketing men in improving their programs. It has not been unusual for the economists to voluntarily pass on to the agency suggestions for improvement. Sometimes rather bitter criticisms have been registered. Suggestions and criticisms from users of data throughout the production and marketing fields, including farmers and handlers of farm products, are common. That these suggestions and criticisms have been helpful in making further advances cannot be doubted.

Fortunately, these same forces have been at work throughout the entire data field, as illustrated by the activities of the American Statistical Association. The pioneering spirit, the interplay of ideas and the determination to advance seem always to have been associated with progress in the field of facts.

A large catalogue would be needed to list by subject and source all the data relating to agricultural production, assembly, processing and distribution that are available in daily, weekly, monthly, annual and occasional reports. If to these were added the publications prepared by agricultural economists and marketing specialists

* A paper given at the Annual Meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

who have used the data from statistical and market reports in attempting to discover fundamental principles or to directly aid farmers, consumers and those concerned with the marketing of farm products, additional pages would be required. Should there be appended a list of the publications that contain examples of mis-use of data because of ignorance of its meaning or perhaps from ulterior motives, the catalogue could be further expanded.

The 739 pages and 765 statistical tables in the 1946 edition of *Agricultural Statistics*, published by the United States Department of Agriculture and the two feet of shelf space required for the printed volumes of the 1945 Census of Agriculture, and the continuous flow of reports coming over our desks and into the files or wastebaskets are evidence of the scope and variety of data now available. More than this, all of us are surprised frequently to discover series that we had not known before. With this variety of statistical resources, what more can we ask?

An example of expressed needs for data is found in the Research and Marketing Act.¹ There are two paragraphs that outline a much larger job of statistical work in the respective states and for the nation as a whole than has ever been undertaken on an adequate basis. Title II, Section 202, par. (K)—“To collect, tabulate, and disseminate statistics on marketing agricultural products, including but not restricted to statistics on market supplies, storage stocks, quantity, quality, and condition of such products in various positions in the marketing channel, utilization of such products and shipments and unloads thereof” and par. (g) “to collect and disseminate marketing information, including adequate outlook information on a market-area basis, for the purpose of anticipating and meeting consumer requirements, aiding in the maintaining of farm income, and bringing about a balance between production and utilization of agricultural products.” In turn, the term “agricultural products” is broadly defined in Section 207, and “includes agricultural, horticultural, vitacultural, and dairy products, livestock and poultry, bees, forest products, fish and shell fish, and any products thereof, including processed and manufactured products, and any and all products raised or produced on farms and any processed or manufactured product thereof.” This definition seems all inclusive.

At the state level, the needs for more comprehensive production

¹ Hope-Flanagan Bill (Public Law 733—79th Congress).

and marketing statistics and price and market reports are illustrated in the 1946-47 Report of the New York State Temporary Commission on Agriculture.² Several pages are devoted to findings and recommendations in this field, stressing the importance of more accurate, more comprehensive, more detailed and more timely reports, particularly for the highly perishable fruits and vegetables with which two of the committees were especially concerned. The need for coordination of information on a local, regional and national basis is also emphasized.

The variety of farm products grown and marketed in the United States and those produced in other parts of the world in which we must be interested is so great, and the marketing procedures are so diverse, that we can speak only in general terms of needs for data concerning them. Nevertheless it is essential to keep always in mind that most of the problems calling for solution both in the study of the research worker and in the market place are very realistic as to "what," "how much," "where," "when," and "how," and have individuality that can be easily lost in averages and generalizations. The broad sweep of over-all national or world data has its important functions; but for most active, practical, everyday uses, precise details are needed. Those engaged in research, marketing extension and commercial work are aware of the questions that are constantly arising as to the quality of published data; they are always seeking more details; and they are aware of gaps. Those who have the responsibility of providing public statistical information sense these same problems, along with those inherent in all the complexities of operations including budgets, recruiting and holding competent staffs, developing and maintaining sources of information, methods of statistical procedure, adhering to time schedules for completion and release of the reports.

So much for background. In fact, we should feel somewhat apologetic for having discussed these very simple and well-known matters were it not that there is still much confusion as to adequacy of coverage and definition and accuracy of the data which are already available, and still considerable uncertainty as to what we need.

The use of data as tools for research and marketing activities is so well established, and in spite of the obvious short-comings, is so

² *Report of the New York State Temporary Commission on Agriculture, 1946-47.* State of New York, Legislative Document (1947), No. 57.

successful, that it is reasonable to believe much expansion will take place in the future. Along with this, a few basic considerations must be kept in mind lest we become lost so deeply in a forest that we cannot see the trees. The suggestions noted here are not final or complete answers; in fact, we cannot hope to find the perfect answer. Neither are they presumed to be in the order of absolute importance, which will vary from person to person. The illustrations given are those that come to mind from our own experience and could be multiplied in the various parts of agriculture.

1. As a start, an inventory of the currently available statistical sources is needed. True, there are excellent lists and references such as those in Statistical Abstract of the United States;³ Periodic Market Reports of the Production and Marketing Administration;⁴ Agricultural Economic Reports and Publications of the Bureau of Agricultural Economics;⁵ Bibliography of Agriculture;⁶ lists of Census Bureau, publications as well as those appearing in other agencies and in periodicals such as the *American Economic Review*. Nevertheless, these are scattered, sometimes fragmentary, often uncoordinated, and not always readily accessible. A well-developed, cross-indexed and comprehensive catalogue of agricultural statistical sources and publications, properly annotated and kept up to date would, of course, be costly, and would require the skill of the librarian, the economist and the statistician. It should be started at the national level, and cover all federal departments and agencies. It should be expanded as rapidly as possible to include data compiled by state agencies and by private organizations. In the meantime, a similar list of the materials believed to be most useful within the respective states might well be prepared within each state. No doubt many government departments and libraries already have made beginnings. Such catalogues, when developed, would result in savings of time for workers and would call to attention sources not generally known, and would result in greatly increased economy and efficiency in research.

2. More detailed publication of facts already available is needed. Some very useful data which appear as national totals in "Agricul-

³ *Bibliography of Sources of Statistical Data, Statistical Abstract of the United States, 1946*, pp. 972-1002.

⁴ *Periodic Market Reports of the Production and Marketing Administration, U.S.D.A.* (duplicated), May, 1946, 30 pages.

⁵ *Agricultural Economic Reports and Publications, Bureau of Agricultural Economics, U.S.D.A.* (duplicated), September, 1944, 56 pages.

⁶ *Bibliography of Agriculture, Library, U.S.D.A.*, monthly, duplicated.

tural Statistics," are available by states only in scattered publications. Production of dry edible beans, by varieties by states, is published in the December *Crop Report* and in the January issue of *Crops and Markets*. However, series of data on dry beans stocks, prepared quarterly and published in current mimeographed reports by states, during the war years, appear only for the September 1 date, with national totals, in the 1946 edition of *Agricultural Statistics*. This is only one of many examples of detailed data which are practically unavailable to the ordinary user.

The situation in individual states is even more chaotic. Only a few states appear to have any consistent program of permanent publication of agricultural data originating within the states. Even the best of the programs often leave much to be desired as to quality and definition of the data, the methods employed in assembling them, and the reliance that can be placed upon them.

Adequate publication of what is already available, with all that is implied in the way of evaluations and definitions of the data, would add greatly to the resources for workers in research and marketing and would also stimulate workers in statistical organizations. So much for having a continuous inventory of data resources and getting out the material we already have so that people can readily use it.

3. Critical evaluations of the quality, completeness, and meaning of data which have been available in the past are needed, and new data must be similarly scrutinized. These are responsibilities of the agencies that originate the data. A visible recognition of their importance in government agencies is apparent in recent pronouncements of inter-departmental committees sponsored by the Division of Statistical Standards of the Bureau of the Budget. For example, there have been problems involved in reconciling data on acreage of crops as collected by the AAA in its programs, with the official estimates of the Bureau of Agricultural Economics. Similar problems have arisen when Census crop and livestock statistics and the statistics issued in Bureau of Agricultural Economics reports for the Census years have differed.

The frequent revisions of crop and livestock estimates data and of agricultural and farm income published by the Department of Agriculture are vexatious, to say the least. Revision of data in other agencies is not at all uncommon. The need for evaluation has been recognized for years. The reliability and adequacy of farm

products price data of the Department of Agriculture were the subject of study as long ago as the 1920's, and the results were summarized in publications.⁷ Tables of prices for New York products, a part of this series, were published, with their reliability designated as A, B, C, or D, respectively in a state bulletin.⁸ Frank scrutiny of this sort, if general, would save many people time and would prevent some serious mistakes of judgment in drawing research or business conclusions. It would mean, too, that, with their limitations known, some data of rather low grade could still serve useful purposes under conditions where little precision is required. It is gratifying that the necessity of adequate description of statistical series in terms of both quality and content is being recognized, and, in some instances at least, frankly faced. To the worker using the data, these are important. At the same time, the research worker who uses the data has an equal obligation to frankness.

4. It seems probable that the demand for more data, on more subjects, in greater detail, will continue to grow. For example, when we are interested in beans—whether we mean dry beans or snap beans—the question immediately breaks down into Limas or Red Kidneys or other kinds. The Red Kidneys grown in California are in many respects different from those in New York in relationships to production, price and marketing problems.

When we consider snap beans, we find that in New York, they are planted in widely separated areas, from early spring until mid-summer, some are yellow, others green; some are especially for canning or freezing and some are for fresh market; some are grown under contract and others not; a frost, flood or drought that may ruin some plantings may have no effect on others, and there may be a glut on one market with low prices while another market may have short supplies and high prices. Moreover, the situation can change rapidly.

If we had a large part of the data really needed for effective economic investigation and marketing of snap beans we should want at least the following: Acreage, production, average farm price, by counties or at least by logical production areas; this should be broken down by area planted in successive time periods, perhaps by weeks or semi-monthly, since plantings are in succession in

⁷ *Reliability and Adequacy of Farm Price Data*, U. S. Department of Agriculture. Bulletin No. 1480, March, 1927.

⁸ *Agricultural Statistics for New York State, 1928*, *Agricultural Bulletin No. 226*, May, 1929, New York State Department of Agriculture and Markets, Albany.

time in order to have a long marketing season. We would need either to establish constants, if such exist, for the time elapsing between planting data and harvest, or to estimate the acreage harvested by short periods, since yields vary, the average yield per acre for the various harvestings would be needed, from which could be computed production in successive weekly, semi-monthly or monthly periods. When the market is poor, a part of the crop is often left unharvested because costs cannot be recovered. We would need measures of abandonment, by specific periods and areas. Sometimes, however, it is possible to divert market beans to canners or freezers during market gluts, and hence there would be needed the volume of such diversions, again by area and time interval; because canning beans can be diverted to fresh market, similar data would be needed on this subject. Markets are sensitive to supplies; hence, it would be advantageous to have daily receipts at each market reported by point of origin, and to have information on destinations when beans leave the farms. The quantities actually canned and frozen, by kinds and style, such as green or wax, cut, whole or French style, and by size and type of container and by quality or grade, their movement into market and stocks on hand periodically and other data concerning the processed pack, would be useful. Then price data, to round out the picture, would include daily reports on fresh beans at numerous markets; the quantity sold at various prices suitably classified as to type, style of container and other factors; retail prices would be reported.

Supplementing this, contract and open market prices paid by processors to producers, and prices of the canned and frozen beans at various stages from factory to consumer would be available at satisfactory intervals. Moreover, the everchanging supply and style and price of all kinds of containers, of charges for picking and other labor, of seed and fertilizer, of transportation and commission costs and the like, would require precise data. Furthermore, forecasts of production, and even "intentions to plant" reports, particularly when broken down by short-time periods during the season, would further complicate matters. Actually, considerable amounts of some parts of the data mentioned here are available, some of it is in relatively adequate form and other parts are lacking or are defective. For intelligent market decisions on beans, similar information for competing commodities would be needed.

It is safe to say that a list of actual or potential needs for data, differing only in detail, could be built up for every product marketed from farms. The building up of details has of course been irregular, and it varies between different products and in different areas. Thus, California has an excellent series of data on fruit trees and vines by ages and varieties, which is lacking in other states. Texas has admirable current statistics on monthly livestock movement by counties. Cotton and wheat statistics are more highly developed than are those for other staple crops. For many minor crops no data, or only fragmentary data, are available.

New subjects will come under consideration from time to time. Matters generally included in the field of rural sociology have a direct bearing on production and marketing problems. The impact of urban and rural living conditions, of hours, wages and regularity of work in agriculture and related industries, of characteristics of workers and their families, of worker migration, and other personal and environmental factors must be recognized. Data in this field are in an exceedingly elementary stage of development.

5. In general more detail, sharper definition and greater accuracy of data are needed in production, marketing and prices. They are all inter-related and inter-dependent. The inherent problems of data in the production field are limited to some extent by the area of land available for agriculture and by the biological characteristics of plants and animals which have well known and, limited possibilities for variation. Even here, compilation of statistics and the making of estimates and forecasts is fraught with difficulties. Marketing phenomena have possibilities for large and rapid changes as yet unpredictable. Price structures and price reporting are becoming more complex. In fact, it is the difficulties in these things that make research and marketing services so important.

This is not an occasion for discussing statistical methodology. It is pertinent to the subject, however, to point out that the needs already enumerated can be met only by the application of sound methods. Progress has been made in recent years in developing statistical theory. The nature of agriculture is such that the testing of the theories in actual practice is often difficult and costly. However, so much of public welfare is involved in being able to prepare good statistics at reasonable costs that continued research in how to provide data cheaply must go hand in hand with other research.

There are various possibilities for improving statistical methods.

Included in these are such matters as better selection, training and supervision of enumerators, interviewers and market reporters in the Census and in field surveys and market reporting where information is secured through direct contact; the use of enumerative sample surveys; the refinement and general improvement of market surveys; the application of weather observations and phenologic factors to production forecasts; the development of better statistical schedules and the cultivation of more adequate responses from the people who are being queried; the more efficient handling of the raw data once it is secured.

Because these problems are so important and difficult, they are a constant challenge. Better methods and greater efficiency in collecting and compiling data must go hand in hand with their use for research and marketing. It is important that the colleges give attention to developing students, at both the undergraduate and graduate levels, who can bring to this work both theoretical and practical skill.

It is important to remember that the people who are actually producing, handling, selling, and buying the products are the initial source of data we use. They have an important stake in it. Time and money are required for them to answer the questions. Sometimes they are asked for facts that are confidential in nature. They pay taxes to support the researchers and statisticians. They have a right to expect that the use to be made of these facts will justify the cost.

If the needs for data, particularly in new enterprises, are to be met in an orderly way, everyone concerned might well have in mind a few points as to procedure that will require coordination.

(a) Be sure that the information proposed to be gathered will be useful.

(b) Find out what has already been done, how much, by whom, and how. In some public agencies there may already have been collected some routine records such as license applications, inspection reports and other administrative documents, not tabulated or published, which could supply the required data, or provide a foundation for it. Similar resources are often available in the records of individuals, corporations, and cooperatives. There are many rich mines of such material that could be made useful with proper statistical handling. Surveys of this sort may save a great deal of duplication and prevent the repetition of mistakes others have made. One is frequently surprised to find how well something

has been done in the past, perhaps in another state or by another agency.

(c) Study the field, descriptively, and become generally familiar with the characteristics of the commodity, the techniques of its production, the steps from farm to market, including processes, products and their uses, marketing methods, both wholesale and retail, and price structures and their variations. Consult with practical men who earn their daily living with the commodities being studied. Some of them may already know more than the economist or statistician is likely to find out in months of labor. Moreover, the good will of these men is of value from the start.

(d) Define as clearly as possible the universe to be included. If practicable, separate it into such component parts that, if only a small start can be made, the results, though limited, will have usefulness.

(e) Determine accurately the details that are needed, how frequently they should be collected—if more than once—define them and list them in order of their importance to the public and also in the order that it appears practicable to obtain them.

(f) Having gone thus far, plans for actual operations are in order. If more than one organization is to participate in a program, it is essential that the provision for coordination and over-all responsibility will be effective, and that each group or party is prepared to carry out its assignment.

(g) Determine the best approach to the job, whether by personal enumeration in full, by enumerative sampling, by individual case method, by mail, telephone, or a combination of methods, and lay out plans accordingly, including estimates of costs.

(h) Design a trial schedule or series of schedules in accordance with the best practices, that will be clear-cut and logical along with instructions for use. Submit them for criticism to persons familiar with the industry. Don't be disheartened if they are criticized severely. Profit by the criticism and revise if necessary. At the same time lay out the tabulations, and summaries that are to be prepared. Justify each one.

(i) Try the proposed schedules on a few respondents in a preliminary way. Work up the results and see what changes are needed. Then, try it in limited areas or a few states, if a national project. Sometimes conditions vary widely between areas and the analysis should apply locally as well as on a state or national basis. Before

launching into full-scale operations, make certain that the plans of operation have been so carefully worked out that they will function well.

(j) Recompute the probable cost, readjust plans in the light of funds or funds in relation to plans, make sure that proper methods have been determined, that an adequate staff, both professional and clerical, is available and can be kept with minimum turnover or interruption until the job is finished.

(k) Then go ahead, and keep working to improve methods, to hold costs at a practical minimum all along the line. The importance of skilled administration and supervision need to be stressed. They have been overlooked too frequently.

AGRICULTURAL DATA NEEDS IN EXTENSION WORK*

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EARLY beginnings in extension work date back to the various agricultural societies of the Colonial Period. In 1785 the Philadelphia Society was organized to aid agriculture and spread information of interest and value to farm families. Farmers' Institutes were started and had become well established by 1899, forty-seven states including Wisconsin providing money for them.¹ These Institutes were staffed with speakers from the land-grant colleges, successful farmers, and farm women. Boys' Corn Clubs grew from these Institutes which later became known as the 4-H program.

However, it was the invasion of the Mexican boll weevil, which set in motion a series of events which led to the start of the Extension Service. Dr. Seaman Knapp, an employee of the U.S.D.A., was sent into the cotton area to develop control measures, and he began the use of his "demonstration" theory to teach farmers. The citizens in Smith County, Texas, on November 16, 1906, appointed W. C. Stallings as the first county agricultural agent.

The history of cooperative extension work has closely paralleled the development of agricultural colleges and is an outgrowth of an historic state-federal relationship which began officially in 1862. On May 15 of that year Congress approved the organic act creating the agency subsequently to become known as the U.S.D.A. On July 2 President Lincoln signed the first Morrill Act known as the Land-Grant Act. Under it the federal government was authorized to grant each state certain lands of the federal domain, the income from which was to be used for financing colleges for the teaching of agriculture and mechanic arts. Later in 1887, the Hatch Act, more commonly known as the Experiment Station Act, became law. Under this law the land-grant colleges were authorized to carry on

* Paper read at the Annual Meeting of American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

¹ A. C. True. *History of Agricultural Extension Work*—U.S.D.A. Miscellaneous Publication 15—1928.

research in scientific agriculture and to conduct experimental farming. On May 8, 1914 President Wilson signed the Smith-Lever Act providing a legal and fiscal basis for agricultural extension work to be carried on cooperatively between the Department of Agriculture and the land-grant colleges of the respective states and territories. Further national legislation from time to time has strengthened and enlarged extension work. Latest legislation, the Bankhead-Flannagan Act, has done much toward providing additional county agents, other needed personnel, and generally to round out the extension program to meet present-day problems.

The Smith-Lever Act set up the Extension Service to: "Aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same."

The Cooperative Extension Service became the means whereby new agricultural knowledge made available through research and experimentation could be demonstrated in practice among operating farmers. Last year over five million farm families and over three million non-farm rural families took part. In Wisconsin, county agent work began in 1911. Distinctive features of the Wisconsin plan for this work were its close association with the county agricultural and teacher-training schools, and its public welfare character by being supported entirely by public funds.

Extension is teaching in the broadest sense of the word. Each student has his or her own laboratory and does his own testing of ideas which are aimed toward expanding the welfare and happiness of rural people.

The chief purpose of the Extension Service is to help people help themselves. This is accomplished through the development of local leadership in ability to build and use a plan for farm and community enterprises. Improvement of soil and of livestock; making the home more attractive and convenient; 4-H calf and clothing projects are not the ends but are means to the end. Unless these attainments are used as means to advance the well being of those who live in the country, the purpose of extension will not have been achieved.

Extension teaches through doing, through showing how to do in demonstrations, through showing the results of following approved practices. Action usually follows a felt need and learning results from action—that's the basic educational philosophy of Extension.

The number and variety of extension specialists connected with agricultural colleges have grown steadily in all states as funds for their work increased. Specialists are employed in nearly every important phase of agricultural extension. Extension specialists participate in meetings and prepare publications and bulletins. They give assistance and support to the vast network of county agents in many of the special problems. A major part of the specialist's time is spent in county agent training and assisting the agents in planning projects. It is here that need for facts about individual project backgrounds is greatest.

New activities are constantly being added to today's extension programs, items hardly thought of a decade ago. For example, farm electrification and efforts of farm-home modernization and building improvement have become important demands on extension workers. Rural health and accident prevention are of growing concern in rural communities, and increasingly the extension service is appealed to for help on these problems. Wartime programs for expanding farm production have caused greater emphasis to be placed on outlook work, farm management, farm finance, and accounting methods.^{2,3,4} As the shift toward farm mechanization and sound soil management proceeds—and all of us are aware of the speed at which these trends are moving—demands from farmers for help on these questions will multiply rather than diminish.

This general sketch of extension activities should be sufficient illustration that extension needs for facts and research information do not remain fixed. These requirements are as dynamic and shifting as the progressive trends of our great agricultural enterprise itself. I think it is necessary, though, to point out that the needs for factual information by the extension service are essentially divided into three levels of operation somewhat in correspondence with our pattern of government. It is especially important, I think, to underline that in extension work operations at the county and neighborhood level have continued to expand throughout the years of extension development. While questions of administrative integration have been dealt with successfully on the national plane,

² W. B. Stout, "Post-War Extension Problems in Agricultural Marketing," this JOURNAL, Volume 28, No. 1, February, 1946.

³ George W. Westcott, "Post-War Extension Problems in General Agricultural Economics," this JOURNAL, Volume 28, No. 1, February, 1946.

⁴ Carl Malone, "Post-War Extension Problems in Farm Management," this JOURNAL, Volume 28, No. 1, February, 1946.

extension activities are probably best known at the state and county levels.

It is mainly on the county level that contact with the individual farmers is made and it is here that the fundamental objectives of extension are planned and achieved. Research results must be adapted and translated into benefits and needs of the locality and the individual farm. It is also at this point that the bulk of the factual needs of extension teaching must be focused.

Extension leaders need two major services in the field of factual information. First, they need information, statistical data, and research experience in sufficient geographical detail to plan and effectively carry out programs of operation. Such factual data must be capable of being used and interpreted in the light of local conditions. Secondly, extension workers need facts on trends and changes for broader area patterns in order to measure the results of extension from state and national viewpoints. The comparison of local situations with larger areas is also made possible. Essentially the direction and planning of extension objectives must be kept abreast of changing conditions.

In the past, agricultural statistics have been for the most part adequate to present significant trends on a national or state basis. Figures for individual states and the nation are readily available on major developments. When it comes to the local or county level, however, the data available for use have been much less adequate than at the state and national levels.

Looking to the future it is likely that more, rather than less, factual material by counties will be needed in extension work. As extension functions become more specialized it becomes increasingly important that our efforts be directed to specific areas where special problems apply. Only in this way can we be most helpful to farm people and obtain the most efficient results from our efforts and resources. Then, too, as the educational level of our farm people is raised the demand for extension aid is greatly increased.

An extension program is largely a group of projects. In order to plan these projects wisely we must know the factual situation for each project. Let me give some examples. In one of the counties in Wisconsin it was found that only 30 percent of the farms with electricity had running water. Obviously then, a project on getting running water in farm houses precedes giving much emphasis to a project on modernizing farm kitchens and homes in this county.

Likewise, projects to extend the use of farm conveniences depends on the extent of farm electrification. At a local meeting in one county a good speech was given on hog-raising practices by an extension specialist. Later it was found that very few farmers in the audience raised hogs, most of the hogs in the area being produced in another part of the county.

A circular about poultry care was to be sent to a general mailing list of farmers in a county. On checking it was learned that nearly all the chickens in that county were located in five townships. As a result, the circular was sent only to farmers in the townships having chickens. This plan saved considerable cost in envelopes, mailing, and work. It produced good results because it was directed specifically to areas where most of the farmers were interested. It avoided bothering people who were not concerned with this particular project, which is also important.

It was observed while planning projects for one of our counties that its average milk production per cow was very low compared with other counties. Analysis showed that inadequate grain supplies were a major cause of this low milk production. The county was in an area with a soil type unfavorable for raising spring grain. Available research for this soil type had shown winter grains to be more productive than spring grain—yet the majority of farmers were still seeding their grain in the spring. A project encouraging farmers to shift to fall-sown grains was started. To date the results of this county project have been very successful not only in better grain yields but also in higher milk production at more profitable feeding rates.

I am sure that many similar instances showing the need for statistical data of the area type in planning activities can be found in every state and county. It may be well to digress a moment at this point to bring out a basic difference in the philosophy of teaching and extension not commonly understood. In the usual formalized classroom organization, the curriculum is planned in advance. The subject matter is selected and presented so that the student is given the essentials of the broad prospective and can make more detailed studies as he wishes. It is a generalized over-all approach.

Extension work, however, begins with the problem based on the needs of the situation. The teaching subject matter is focused on solving the particular problem. Only the relevant facts in agronomy, soils, pathology, bacteriology, economics, genetics, etc. are con-

verged and adapted to answering the specific problem. I think it is important for economists to more fully appreciate this distinction in order to understand why extension workers need data pointed at specific problems such as statistics on a local area basis.

A factual justification for a project is necessary before it is undertaken. People learn when they know there is a need for a practice and circumstances are favorable for its adoption. Facts often show them the need for projects and make possible comparisons with similar situations in other counties. Local programs cannot be well managed without local data. Individual projects should vary with the factual information about each county—often within a county. Program planning of extension activities needs to be based on all the information available about a county. A study of the trends in an area over a period of years may be the best basis for deciding whether a particular project should be undertaken.

This need for statistics to meet specific local requirements is by no means limited to extension work. Economists and statisticians have not been unaware of the growing importance for more complete factual data for smaller geographic regions. The problem is one of considerable difficulty. It has been pointed out that the work in agricultural statistics divides into two phases, one dealing with problems of collection and the other with distribution.⁵ They have been referred to as the input and output phases of statistics.⁶ The attention to distribution phases has lagged behind that of data collection, particularly for county and local data. While much progress still remains to be made on the techniques of data collection and estimation of county material, it seems that for the immediate future much more could be done in the direction of processing and distributing county material that has already been collected. Despite inadequacies in existing data, considerable benefit would result by making readily available local data already accumulated. It is not necessary to wait for the ultimate perfection of statistical methodology before supplying needs for county information. Much can be done with the use of the existing data, and this in turn may hasten the development of better collecting methods.

⁵ W. H. Ebling, "State and Local Needs in Agricultural statistics," Unpublished Paper Read at Economic Statistics Conference, Raleigh, North Carolina, October, 1945.

⁶ W. H. Ebling, "State Opportunities in Agricultural Statistics," Mimeographed Paper Read at 27th Annual Meeting of National Association of Commissioners, Secretaries, and Directors of Agriculture, Memphis, Tennessee, 1945.

A vast amount of local information has been collected by various agencies. The United States Department of Agriculture collects a large volume of data on many agricultural items. The work of the United States census on agriculture, of course, is well known. Much data have already been worked up into county totals. Other county information is available without great amounts of additional work. Government and private agencies collect and at times publish factual material on agriculture showing county relationships. However, publication has largely been limited to national and state data, much less being shown by counties, and almost none for areas below county size.

It seems, therefore, that a major need could be served by bringing together what is known and available for the various counties in an organized form. Because of the many uses of agricultural data on a county basis, it would seem that this material could best be published in popular bulletins of non-technical nature so that a wider number of users could be satisfied. Coordination of the existing information on counties is probably as important as the collection of additional data. Expenditures for additional data should be on the criterion of needs not already met by available material. We cannot know adequately what new data are needed until we have processed and made available data already collected. Much county material exists of which fuller use will be made if it becomes available in convenient form.

How can this job of synthesis of existing county material best be accomplished? It would seem that organization of collected facts about a county should be done close to the county itself in order to present the material from the viewpoint and importance to the county. Unfortunately, people in the counties do not have access to much of the data collected and found in repositories at the state and national levels. Also, facilities for handling and processing the data are not usually present in counties. County workers are not in close enough touch with various sources of data and would be handicapped in assembling them. Experience, equipment, and trained personnel are not always obtainable for getting a good job done in the county. Then, too, there are many benefits and economies in having a project of this kind centered in one location. Advantages of standardization and large scale production are readily apparent from using a central office. Publication costs could be lowered. In many cases it is easier to collect and process the

information for all the counties in a state at one time than having each county duplicate the efforts on a small scale. The pooling of experience would result in more complete reports than would be possible with a number of smaller operations. For the counties of the state, the state level, therefore, appears to offer the best opportunity for carrying out a project of this nature. In addition to being close enough to the local viewpoint, this level has the advantage of having access to data available from national agencies as well as from those in the state.

Assembling county information at the state level could bring statistical material into balance not only for extension use but for many other users as well. The national and state data which are basic to the determining of general trends underlie much extension work. They could be supplemented by individual county publications bringing together all the available information on agriculture about a county. This local approach should be along economic lines and show the effect of general trends on the local situation. Local data could then be appraised as a part of the general economic story of the country. Opportunity to include special items which are important locally, such as land use, tenancy, forestry, and population, could be incorporated into one source data publication for the county. Local needs differ from state and national needs. Many short-time changes so important nationally lose significance locally. An important point here is that a mere offering of figures and tables is not enough. The material acquires value as it is organized into a continuous and orderly presentation regarding the history, economy, and prospects of a county. Combining the county material into a single publication adds to the usefulness of the statistical material.

In Wisconsin, progress has been made along these lines. Funds have recently been appropriated for bringing an earlier project of this nature up to date. This work is carried on by the Crop Reporting Service in addition to its other activities, and thereby coordinates the information on the counties with both the state and federal statistical programs. Distribution of the county publications is largely made through the 71 county agents. While the state statistical agency has special advantages for collecting, processing, standardizing, and publishing the material, the people in the counties close to local needs are in a preferred position to make the most effective distribution. For this reason, the Wisconsin county

reports are prepared by the State Department of Agriculture but distributed locally by county agents.

Collecting together in one publication the available factual material about a county, of course, is not the complete answer to the ever-growing requests for county data. It would, however, go a long way toward fulfilling certain minimum requirements for the many needs in county planning by both public and private agencies. From time to time special problems and questions are sure to arise locally concerning planning for the county work. A high degree of precision in the statistics necessary to answer most administrative questions is not required. Under these circumstances it is possible that ways of getting inexpensive answers rather quickly which are sufficiently accurate for the purposes can be found. Uses of statistics are usually rather broad and often undue refinements of the data for numerous administrative problems do not "pay off" in increased usefulness. It is not intended to belittle the great amount of attention now being given by statisticians to matters of technical development and methodology. It is sufficient, rather, to point out that it is possible that perhaps more attention could be given by statisticians and economists toward meeting some of the simpler day-to-day local problems and thereby increase the effectiveness of their service to agriculture.

If the growing requirements for more statistical information about localities are to be met, the localities themselves must take a part in their collection. Some local data are not available at the state level. Local cooperation is needed if this specialized material is to be included in statistical summaries. Often special data are available in localities concerning soil studies, maps, early settlement, and other information about developments of the county. Collaboration with local people is needed to get this material together and published in a single source book of information about the county. County publications themselves create greater interest for more county data and state and national material takes on new significance.

Such a program for publishing local data in convenient usable form requires the cooperation of various agencies (local, state, and federal) working on the county front and at the state level. What should be the basis for teamwork in getting this needed agricultural statistical job done? What can each contribute to more complete bodies of information? How can the material be best supplied?

These are questions which should be answered best by mutual searching by all interested parties coordinated into a unified program based on known needs on a state-by-state basis.

Over the years both the fields of extension and data collection have had a long chronology of experience. Neither field has reached its present attainments without numerous experiences of trial and error. Experience in data collection is rooted in the early development of American farming and antedates even the formation of the United States Department of Agriculture. It has taken considerable experience to obtain the knowledge and methods necessary to assemble timely and usable factual data serving modern complex agriculture.

Agriculture in more recent times has become increasingly conscious of the characteristics of its operations in the local sphere. If agricultural data are to be of growing service to their users, it must keep abreast with these trends and reach down into the needs serving this important farm front.

THE USE OF AGRICULTURAL STATISTICS IN SCHOOLS*

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THE use of agricultural data and other economic material in schools presents some problems that will be given increased attention in the next few years. The development of agricultural teaching in the United States has a long and interesting history. It evolved slowly and even today it undergoes frequent change. New subject matter has been added from time to time, but it is clear that we have made more progress in the natural science phases of our work than in the social sciences.

I

Early America was a country of agricultural and rural communities. Everyone knew about farming. Even a large part of the artisans and professional men had some agricultural interests, and most people were rural minded. As the country grew, the expansion was largely an expansion of the nation's agriculture. It is not surprising, therefore, that the promotion of agriculture has been a concern of political and social leaders throughout most of the nation's history. In the beginning our ideas of education were largely based on experience in Europe. Developments in other countries were watched by American leaders and new things abroad were frequently adopted here. Agricultural schools as such were first founded in Europe, probably around 1800, and the movement spread to America. The early agricultural societies were interested in agricultural education and research and they fostered public support for it.

As agriculture in the United States expanded, agricultural socie-

* Paper read at the Annual Meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

** The authors wish to acknowledge the assistance of Paul W. Smith, Agricultural Statistician, U. S. Department of Agriculture, Washington, D. C., who read this paper and made suggestions regarding the content and presentation.

ties grew in number, size, and influence. State agricultural associations and state boards with public support came early in the 19th century.¹ In the general progress of education early emphasis was given to the development of the natural sciences, which in turn had their influence on agriculture. As agricultural schools evolved; such subjects as botany, mineralogy, chemistry, and other natural sciences formed the basis of much of the early teaching. While interest in the field became widespread by 1850, there were few trained teachers who could deal with the subject of agriculture as such. But the teaching of science grew, which was a step toward the development of the agricultural instruction. "The application of science to the common purposes of life" was one of the basic principles of education at that time, and it fitted into the early concept of teaching agriculture. Engineering and engineering-training developed and agricultural units began to be connected early with colleges, some of the earliest examples being the Rensselaer Institute² of Troy, New York and Trinity College of Hartford, Connecticut, both established in 1824. Agricultural education was attempted at that time by private institutions, but it never had much success. It was not until public support for it was obtained later, especially the national support in the form of the Morrill Act of 1862 and others, that the field developed significantly at the college level. In fact, when the Land Grant Act of 1862 was passed, agriculture had almost entirely disappeared from secondary schools.³

In the elementary schools agricultural teaching came more slowly but a widespread movement developed after 1900.⁴ It early took the form of object teaching, nature study, and school gardens, and of these movements nature study probably left the greatest impression. With the awakening which came early in the present century, both elementary and secondary schools have had an enlarged interest in the teaching of agriculture. Text books, boys' and girls' clubs, prescribed state courses, and home projects were developed. The need for trained teachers has always been a problem, and the teacher probably counts most in the success of a school program.

¹ U. S. Department of Agriculture Miscellaneous Publication, Part 2. "The History of Agricultural Education in the United States, 1785-1925," by A. C. True.

² *Ibid.* Part 3.

³ *Ibid.*, p. 322.

⁴ *Ibid.*, part 8.

II

Teaching today is quite a different process from what it was a generation or two ago. When most of us went to school we were taught by studying large general bodies of facts, such as the geography or the history of the nation as a whole, or a continent as a whole, and eventually in this general approach we progressed from the general to the particular, a deductive process, and we considered our home state and perhaps even our own locality after studying the larger units. Today, the process has been reversed. In our teaching, wherever possible, we begin with specific things—the local facts—and go from them to the general.

In teaching agriculture we recognize that a boy has learned much from his father, but that the vocational school can give him in addition some of the latest information and an introduction to newer and better methods. In the teaching process it is customary to start with the boy's home farm through some form of home farm survey.⁵ These surveys made by the various members of the class provide the information regarding the conditions and practices in the locality. Thus the studies of the various individual farms become a study of the locality or some portion of it. From the locality it is a logical step to the county, the state, the nation, and the world, and each in succession can become a unit for study with much of the thinking meanwhile based on what was learned in the previous units beginning with the home farm and the community.

In addition to surveys of this kind, vocational agricultural pupils are, of course, in a position to study the production records of their own farming programs and thus secure information which is made the basis for comparative studies. In studying the home farm and the neighborhood it is possible to observe many important facts. First of all, these studies show the type and scope of the local agriculture. Later, matters of agricultural practices such as the use of different types of fertilizers, dairy herd tests, herd production records, feeding practices, breeding practices, marketing practices, and other items can be explored. It will be observed early that some farms are better than others—that some farms are more profitable than others. Why is this so? Is it because there are better cows, better management, better soil, better practices, better markets,

⁵ A typical survey is that used by the Waukesha, Wisconsin, High School which is mimeographed and contains 26 questions on the home farm, its enterprises, and livestock.

or what are the reasons? From this it is logical to come to a comparison of methods, practices, and results in the home locality and perhaps to compare the home locality with other areas—perhaps with competing ones whose products we meet in our own markets.

When agricultural teaching in high schools today is compared with that of former times, it is clear that this important reversal of methods has taken place. Where once we worked mainly by deduction from the general bodies of facts to specific local situations and to specific conclusions, we now work more and more in the opposite direction. Instead of taking a large body of facts as a whole, we begin with the local or best-known situation. We usually begin with the smallest unit, such as the home farm or perhaps for some things with the home neighborhood, and hence, by inductive methods we come to conclusions and to an understanding of the larger areas of the universe in terms of the smaller ones that we can readily see and comprehend. In other words, good teaching today endeavors to relate the subject matter to the pupils' personal experiences. New facts are presented by relating to previous knowledge and explaining the cause and pointing out the effects in contrast to the old method where a fact was to be learned or memorized as such for later use or reproduction.

III

What has all this to do with agricultural statistics? Well, obviously, a great deal. Factual data have long been collected in our rural localities by various agencies. When it comes to the published agricultural statistics, it seems that our methods of summarizing data for publication are comparable to methods of teaching that were used a long time ago where we worked deductively from a general national or state picture to the local or individual situation. Generally speaking, statistical material which has been collected has been used mainly to provide state totals or national totals. The Department of Agriculture and the Census have long published valuable series of figures on crops, livestock, prices, and other items for the nation and by states. But much less in local summaries or estimates has come back to the localities from which the material was originally drawn. True, varying amounts of material are available by counties in the states, but very little by areas smaller than counties. To be sure, there are data published in the local newspapers on prices, market reports, or local reports of herd improve-

ment associations and the like. Such local data play a part in the action programs of individuals who are constantly making decisions as to what is to be done on their farms or in marketing their products.

In general, however, it may be said that even though figures are often collected for individual farms which can be added by townships, statistical summaries have been available only for the larger units of government such as the nation or the states, and it has been difficult to get many of the facts and figures for smaller subdivisions such as counties or subdivisions of counties. There is a marked contrast between the generous amounts of information available at the national and the state level as compared with the county level or units smaller than counties. In a sense, the national and state summaries are quite dissociated from the localities, and in terms of the localities they have lost much of their meaning. Like the teaching methods of decades ago, our data summaries deal first and most adequately with the larger areas, but they fade out when it comes to the local or specific smaller units with which we initiate much of our teaching today.

So when it comes to the use of statistical material in schools with present teaching methods we are obviously in difficulty—not that the data which we have at the national and state levels do not serve important purposes, but they do not supply us adequately with factual material at the beginning point of our modern teaching program. In our lesson plans today we are likely to want early the data of a local nature. Later as one progresses in the teaching scale to larger areas, one comes to and uses the excellent summaries that are available there. In Wisconsin the well-known series of statistical reports under the title “Wisconsin Agriculture” has served very well for state level material.

In planning local school projects, data revealing the characteristics of the locality are essential. Facts collected in the area through enumerations or otherwise, however, have been mostly sent off to distant places and the local summaries that could be made from them are not available. It must be possible to find ways whereby material which has been collected in the locality can be summarized and made available for local use. Until this is accomplished, facts collected by the Department of Agriculture, state assessors' enumerations, and the Census cannot fully serve our teaching needs.

One becomes aware that the work in agricultural statistics di-

vides into two parts—input and output. The second of these would seem to be underdeveloped compared with the first, and until we process and put out effectively for use what is already collected it may be well to consider strengthening this half of the job. Before much more energy is put on additional collection projects or techniques, why not process and put to use more adequately what we already bring together.⁶ Furthermore, since the biggest gap in our data seems to be at the local level, new resources could probably be used to meet this need rather than for further expansion of national or state level efforts.

IV

In agricultural teaching we have made more progress with natural science subjects applied to agriculture than with the social sciences such as agricultural statistics and agricultural economics. It is safe to say that teachers have been better trained and equipped to teach the natural sciences as applied to agriculture than the social sciences. It is not surprising that we find many teachers of agriculture devoting much more time to the application of the natural sciences, especially in the rural schools, and even avoiding entirely such subjects as farm economics or agricultural statistics. The reasons for this seem to be readily apparent. When it comes to the social sciences, we lack many of the teaching tools and teaching methods which have been worked out for the natural sciences. Commonly, too, teachers are better equipped in their training in the natural sciences than they are in agricultural statistics and agricultural economics.

After all, sciences such as agricultural economics and the statistics in agriculture deal with complex relations. It is not easy here to separate cause and effect, as can often be done in the natural sciences. Yet a knowledge of economic facts such as prices, production, markets, etc., may be even more vital to successful farming than some of the physical science items.⁷ It must be recognized that a farmer's management ability in his business may be as im-

⁶ For a fuller discussion of the input and output phases, see paper "State Opportunities in Agricultural Statistics," by Walter H. Ebling, read at the national meeting of the Directors, Commissioners, and Secretaries of Agriculture, Memphis, Tennessee, November, 1945, mimeographed.

⁷ For a discussion of this subject, see mimeographed paper "Guide Posts in Agricultural Economics," by B. W. Allin, Bureau of Agricultural Economics, U. S. Department of Agriculture, read at conference of vocational agriculture teachers, College Station, Texas, August 6, 1947.

portant in determining his welfare and the standard of living of his family as is his ability to produce crops and livestock. Statistics on production and markets are essential tools in planning on the farm, just as are tractors and milking machines in production programs. If farm boys and girls are to learn to use such tools, an effective introduction to them in schools is worth while.

In our crowded teaching schedules the more exact and better known things are likely to be stressed most. But if the earlier teachers of agriculture reasoned that much was to be gained by the "application of science to the common purposes of life," it would seem that the same reasoning holds now for social sciences, including agricultural statistics and agricultural economics.

In the absence of adequate teaching tools and techniques for the use of agricultural statistics and economics in our high schools and rural schools, it would seem that the quantitative approach which is offered by the use of selected agricultural data offers a key. Statistical material is specific enough to be organized into study lessons by those who are familiar with it. A minimum of teaching tools and methods, however, needs to be developed if this material is to be handled as well as the natural sciences for which teaching tools and methods have been more perfected. Some constructive lesson and project work has been developed by teachers themselves, and in some cases agencies publishing agricultural economic and statistical material have undertaken to provide a minimum of standardized study material to accompany the published output, but generally standardized procedure is lacking.

In Wisconsin, work to supply this need has proceeded along several lines. Agricultural statistics material in the state has appeared in several types of publications. There is the current flow of crop reports, livestock reports, price reports, and other material which the Department of Agriculture issues monthly. The printed "Wisconsin Crop and Livestock Reporter" has summarized this material for popular use. Schools have for years used this report, but in the last half dozen years an experiment has been in progress which makes this material much more useful for teaching than before. The men who write this material on current changes in agriculture now also prepare each month a school study sheet to accompany the printed report. This study sheet contains lists of questions keyed to the printed copy and these questions bring out and highlight the important current changes in agriculture. This

offers a minimum of standardized study material on current trends in agriculture to any teacher.

The great value in this standardized approach lies in the fact that many teachers in the high schools and in the rural schools who use this material have widely varied backgrounds of training and experience. Many of them are quite capable of writing their own study lessons, but others may not have the experience that is needed. Often, too, time is lacking for each one to make the preparation. Perhaps, too, those who compile the current reports are in the best position to know what is important each month and for that reason they can prepare such standardized study material. One thing seems certain, the effectiveness of current agricultural reports for teaching purposes is increased greatly by this method. That teachers use this service is shown by the fact that the number of copies of the study sheet used in Wisconsin during the past year reached 3,500 per month. This may not be a final answer to the problem of the use of such current material in schools, but it represents real progress.

Another Wisconsin project which seems to be geared effectively to the problem of using agricultural statistics in schools is the set of county agricultural statistics reports published by the State Department of Agriculture. Work on this type of publication has been done in the state for over a dozen years, and in 1945 the legislature made permanent provision for it. In this program the State Department of Agriculture periodically publishes a bulletin of about 50 pages giving the basic statistical material separately for each county in the state. Long-time series of the important items are shown for the county and some of the data are shown by townships. This county volume brings together a vast body of statistical material collected over the years by the Department of Agriculture and other agencies, most of which is not available locally. This has gone a long way in filling the big gap that has existed locally under our present system of collecting data and then sending them off to some distant place for tabulation and publication mainly as national and state totals.

This project has made several contributions for teaching purposes. It not only makes available in organized form a vast amount of statistical material for the county and subdivisions of the county so that it can be used effectively in teaching, but the material is organized into a story of the county in which the history, the geog-

raphy, and the general economy of the county are carefully written in manuscript form around the framework of the statistical material. It synthesizes the available material into a usable unity. A mere array of tables, for example, would be far less useful than these organized reports. Again, this approach to the problem may not be the final answer to what needs to be done to provide this material in useful form but it goes far in the right direction.

In addition to the preparation of these county reports, there has also been developed a study guide to be used with them for teaching purposes. This study guide is new so that wide distribution of it has not yet been accomplished, but enough copies were produced so that superintendents of schools and some of our agricultural teachers have had them. This study guide under the title "Know Your County" in 22 lesson units makes possible an organized study of the data about a county. It fits into most teaching programs the county publications that have been prepared for our 71 counties. Here again, it is not necessary that a trained teacher follow the standardized study guide completely, but the presence of a minimum of standardized material by which a thorough study of a county can be made under direction of almost any teacher does enable us to make more effective study of the home locality. While it may not solve all of the problems we have in using our economic and statistical material on a county for teaching purposes, it goes far.

Whatever the developments of the future may be, it is evident that if statistical and economic material is to be used more extensively in the schools than it has been and if it is to be used as effectively as the natural sciences have been used, an increasing amount of basic study material of this type must to be provided. The problem is particularly acute at the present time because in addition to the usual students in our high schools, we are engaged now in training about 200,000 veterans who are making individual plans for their life work in agriculture. How can the material which the agricultural economists and the agricultural statisticians prepare be effectively included in a program of work with these men? How does it affect the individual farm plans in the matters of production, marketing, competition, and in general the planning ahead both for the short and the long term? Clearly, there are many advantages to such a student in knowing the sources and meaning of the data on production, prices, and values, because his life plans, his

success, and his future standard of living may depend upon his grasp of the basic facts which he must consider in his plans and management.

With a better knowledge of what is going on, future farmers will be better able to do their job. We in Wisconsin feel that we have made some headway in fitting our agricultural statistics and economic material to this purpose, although much remains to be done.

Perhaps we need to work together more. Workers in education and in the Department of Agriculture have common problems. Perhaps we can team up in our efforts in making more adequate data and teaching methods available for teaching and perhaps the schools can help to collect data which Department of Agriculture workers want. I am glad to say we are making some headway on both phases of the problem in Wisconsin, but there is room for further cooperative effort.

Since some standardization of material put out is clearly needed so that all counties may have at least the necessary minimum, the work involved probably will have to be done at the state level where most of the existing data are available and where we have the trained personnel that can process it in the light of local situations and needs.

DISCUSSION*

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ABOUT 25 years ago, as a vocational agricultural teacher in Kansas, it was one of my jobs to find statistical and economic material for classroom use. Such material was unorganized and no outline for teaching had been developed. Since that time much has been done not only for high school work but for the grades. However, it has remained for the county agricultural statistical bulletin mentioned in this paper to supply chronological series of integrated data in readily usable form for not only teachers, county agents and other local leaders, but for the lay public as a whole.

Progress in the use of statistics and in the teaching of agricultural economics in schools is much greater in some states and localities than in others. There are a number of important factors contributing to this variation.

1. There has been a reluctance to release data on minor civil divisions. This has been characteristic both of state agricultural enumerations and of the Census. Gradually we are bringing local enumeration data

* A discussion at the Annual Meeting of the American Farm Economic Association, at Green Lake, Wisconsin, September 10, 1947.

out into view. Reasons have been that the enumerations were not complete or were erroneous for one reason or another.

In some instances where we have not been so shy about letting these locality data out for general public use, the "spotlight" has fallen upon them and the local enumerator has had something to use in encouraging a more complete response to his inquiries, and perhaps he has been forced in some cases to do a better job of enumerating. In any event, gradually we are bringing local enumeration data out into view.

2. Finances have not permitted the general release of local data in the past in a good many cases. This is a continuing factor.
3. Sometimes we have awaited a demand for local statistics and agricultural economics with a local slant. People frequently want local data and economic information but tend to be inarticulate in making their wants known.

The demand of vocational agriculture teachers in South Dakota is strong for state, county and still more localized facts on agriculture. As individuals, each teacher is attempting to use whatever is at hand in the way of current and historical data on agriculture. Upon learning of the county bulletin series, mentioned in the paper just given, they expressed great interest in the development of such publications for the South Dakota counties. So far we have just one county bulletin issued, this being an experimental effort.

Plain factual material should be more readily available at the local level. This is a necessity if agricultural leaders, teachers and others are to make more complete use of agricultural economic analyses.

Recently H. R. Urton, Vocational Agriculture Supervisor for South Dakota, made the following remark about use of government reports as one source of agricultural statistics and economic discussions. "Our teachers refer to the statistical reports of the United States Department of Agriculture constantly in planning certain phases of their teaching units, particularly those on developing materials for long-time farming programs dealing with getting the boy established in the business of farming. The teacher tries to bring out, through the use of these materials, what the student can reasonably expect, and to develop in the student the ability to interpret the information and apply it to his own particular situation."

Need for mental training through use of statistics, numerical facts, begins as early in life as there is interest in what is going on in the world around us. Today our children are playing with the atomic models of the near future. Technical uses of chemistry, physics, mathematics, statistics are so far ahead of the laymen in the development of modern day tools, instruments of life and death, mechanical contrivances of all sorts, that we are apt to overlook the obvious point that simple things serve many, or most of us, quite adequately.

The individual may accumulate an excellent knowledge of procedure through training in the subject matter and application of the natural sciences. He may give much greater point to the training in production tech-

niques by having complementary training in statistics and economics. This might well begin in the country or rural school where farm youth may be reached in greater numbers. If they continue into high school, as many do, where they are exposed to more advanced economic training, so much the better. Such training becomes a part of their equipment and tools as entrepreneurs. It seems likely they would as a result gain something additional toward successful living.

Many years ago an eminently successful hog raiser in Kansas pointed out that his breeding and feeding operations were being conducted largely on the basis of the hog-corn ratio series. He may have been unusual but with a few historic figures on pig crops, feed grain supply, the relative position of beef cattle,—he was doing his own forecasting. Perhaps we have ahead of us the job of presenting much data and more economic facts that are more simple than has been our custom. It seems quite possible that many people could do reasonably well, at least much better than at present, in their own individual interpretations and applications.

Our record of achievement through preachments or organized benefits or inducements seems to lack something. Possibly part of the answer is bulk or mass treatment of the more simple facts of local interest—to serve as a base on which greater understanding of economic principles may be erected.

In the county bulletin series of publications so well begun and further developed in the Agricultural Statistician's office of Wisconsin, we have a real contribution toward reaching a larger number of people with perhaps elementary information, if we wish to call it that. It has been serving for years in Wisconsin, however, as a backlog for the development of the more general understanding of more complicated problems. The study guide "Know Your County" should give further point to the county bulletin series.

The current monthly publication, *The Wisconsin Crop and Livestock Reporter*, with the accompanying study and discussion questions, goes far beyond the point to which we are accustomed.

All things require an investment of some kind if they are to be used. Developing publications for use at the county level is no exception. When this job is done at a central location by well-qualified people, it is far better done and much less costly than when it is left up to each user to serve himself. The state statisticians' offices, centrally located as they are, and in a rich storehouse of factual material, can go a long way toward accomplishing this basic service. Finances generally must come at the state level. Budgets must provide specifically for service at the county level for there is no other way of conjuring up these county bulletins and other objective materials.

With the cooperation of economists, leaders in vocational education, the Extension Service and others, we can expect these basic efforts to be fundamental in bringing about much greater understanding of economic truths when they are presented in their necessarily more *complicated* character in the application to local, state, national and world economies.

THE PLIGHT OF THE COLLECTIVE FARMS*

NAUM JASNY

THE idea of reaching and exceeding the capitalist countries in everything and especially in industrial output plays a great role in Soviet propaganda. In the studies of some American scholars this propaganda is reflected in the conclusion that Soviet military-economic power may within the lifetime of men now living exceed that of the United States. These scholars fail to mention that the military-economic strength of the USSR rests on an extremely weak foundation and that at least as likely as the overtaking of the USA by the USSR is the possibility that the poorly balanced system will not survive that long.

One can probably justly say that never before in a peace-time year with favorable climatic conditions, was a slice of plain black bread so valuable to 90 percent of the Russian population as in 1940. The food situation is much worse now and there is not the smallest chance that the unsatisfactory 1940 status will be restored before 1950, as is provided in the 4th Five-Year Plan. Even these very inadequate food supplies are obtained in a way which is unsound and not conducive to stability.

Almost 80 percent of the marketed food is procured from the collective farms (kolkhozy) and their members (the kolkhozniki). Although organized on land and with the livestock and machinery taken from the small individual peasants, who are now the kolkhoz members, the kolkhozy are obligated to heavy deliveries to the state at low, largely almost nominal prices. Since, moreover, they do not operate efficiently, the reward they can offer to the former peasants is so low that a complicated system of economic and legal enforcement had to be devised to keep them at work. In this vastly inadequate remuneration of the kolkhozniki, in the incompatibility of their adequate reward with the maintenance of the military-economic superstructure, is the crux of the whole economic problem of Soviet Russia, its Achilles' tendon. After the collective-farm system has existed for almost two decades no indication can be found that even the smallest reconciliation has occurred. On the contrary,

* This article summarizes some of the findings in writer's monograph on Russian agriculture to be released shortly by the Food Research Institute, Stanford University. The figures stated represent the results of detailed computations which can not be reproduced here. To save space, documentation also was omitted.

the small minority among the peasants who expected big things from the collectives became disillusioned.

The very title of the order of the Government and Party of September 19, 1946, "On the Measures of Liquidating the Violations of the Charter of the Agricultural Artel in Kolkhozy" indicates that this foundation of the Soviet economic system is in bad shape. The order of September 19, 1946, made a direct reference to the similar order of May 27, 1939 "On Measures Towards Safeguarding the Collectivized Land of the Kolkhozy from Squandering." The latter order was even reprinted simultaneously with the new one. Various other orders, starting almost simultaneously with the beginning of the big collectivization drive in the late 'twenties, had aimed at combating the same abuses which have been emphasized in the decision of September 19, 1946. The very wording of the decision shows moreover that, rather than improving, the situation is becoming worse. Owing to this, the Government and Party were not satisfied this time with merely ordering a drive to eliminate the abuses. A special permanent Council for Kolkhoz Affairs at the Government of the USSR with its own local agencies was created by the order to enforce the smooth functioning of the kolkhozy. The governments of the individual republics are not trusted with this responsible task.

Unfortunately almost nothing has been published on these orders in the United States. The scanty material available is an uncritical reporting of the abuses claimed and measures prescribed. Although in view of the greatly unsatisfactory food situation in the USSR, additional output of farm products would be very welcome, the kolkhozniki's desire to have another quarter of an acre of potato land is classed, in view of the government-party order, as a great abuse. It is not realized that those among the abuses enumerated in the government-party order which are real, are an inherent part of the whole system and will disappear only with the system itself.

The invading Germans realized that they could win over the peasants by immediate abolition of the collective system. For various reasons they did not proceed as fast as the peasants wanted and this reduced greatly the propaganda value of the measures actually taken in this direction. A speed up of this action was planned by the Germans for the second—but never realized, invasion—with the immediate declaration of private ownership of the land as the main attraction.

A substantial weakening of the political power—whatever the causes—will break up the collective-farm system and with this the industrial superstructure will become untenable in its present form and scope. When the weakening of the power comes, the problem will not be that of speeding up the process of dissolution of the kolkhozy but one of preserving that part of the collective system. In the first place the collective use of machinery which will be indispensable for maintaining at least a large part of the already inadequate farm output and thus preventing a certainly difficult situation from becoming a disastrous catastrophe.

The Big Farms

The all-embracing collective-farm system was brought to life in the early 'thirties owing to both political and economic considerations. The economic aims were to get farm products for the urban population, raw materials for industry, and supplies for exports greatly in excess of what could have been reasonably expected from individual peasants, and without raising the low prices which prevailed before the start of the big collectivization drive. It was expected that immense savings of labor would provide ample labor resources for industry, while cheap food would contribute to capital accumulations. Thus the means of production, the labor, and the food to feed the labor would have become available for industrialization at previously unheard of rates—a must on which the very existence of the Soviet power hinged.

According to the Marxian doctrine, the doctrine accepted by the Communists and indeed the only one permitted in the USSR, large farms are greatly superior to small farms in efficiency. Those in power were therefore confident, or at least acted as though confident, that the replacement of the millions of tiny peasant enterprises by large farms would both increase the output greatly and reduce costs and thus lead to greatly enlarged marketings of agricultural products at low prices. The experience of the whole world showing that the family farm is successfully competing with farms based on hired labor was dismissed on the simple reasoning that that was experience of capitalist countries and had no bearing on a socialist country. They had, it is true, also the experience of their own industry, where large-scale enterprises are much more in place than in agriculture, and of their socialized trade. Socialized industry and especially socialized trade, as the Soviets managed

them, proved less effective than the by no means well organized private economy of the Tsarist time. The high costs involved in them were the reason for the low prices of farm products, which prevailed before the collectivization drive and were one of the causes of the small marketings by the peasants. The experience of the state farms and the voluntary collective farms of the period preceding the big drive also was not encouraging; neither of them had become either an abundant or cheap producer.

The big drive was proclaimed, in spite of those obvious warnings. Originally, the emphasis was on state farms, the collective peasant farms having been considered merely the stepping stone to the real thing. But by 1935 the sovkhozy (state farms) were definitely relegated to a minor role. In spite of all reorganizations, they continued to be expensive producers and, with the labor on its payroll, the state had to bear the losses. The kolkhozy did not prove more effective than the sovkhozy but in this case the kolkhozniki, the members of the kolkhozy, could be made to shoulder the losses. Rather than to retreat entirely, it was therefore decided to maintain the kolkhozy on an even expanded basis, in this way compensating for the part the state farms failed to take over.

The Big Collective Drive

The Soviet government encouraged the organisation of the collective farms (kolkhozy) from the time it came to power. The kolkhozy of that early period were voluntary and tiny organizations, heavily financed by the state and receiving also other kinds of privileges, such as priority in obtaining means of production. In spite of all this encouragement, they showed a great mortality as well as a large fluidity in their membership. After an initial start, which might have been believed promising, they were declining in both numbers and membership.

A change came at the end of 1927 when a drive against the larger and more prosperous peasants (kulaki) and for the expansion of the kolkhozy was declared. Gradually gaining momentum, the drive reached avalanche-like proportions late in 1929. The fight was conducted under the slogan "Annihilation of the kulaki as a class." the property of these 2-3 horse farmers serving as bait for the small fry. Everything below a kulak was forced into the kolkhozy at such a rate that more than half of them were collectivized in a few weeks. After a severe setback early in 1930, the drive went on at a

somewhat slower speed. Still, in little more than $2\frac{1}{2}$ years, by July 1, 1932, 61.5 percent of all households and 77.7 percent of the peasant cropped plowland were collectivized. In 3 more years only 5.9 percent of the peasant cropped plowland remained outside of the kolkhozy.

Manifold fundamental changes in the organisation of the kolkhozy accompanied the all-out drive. The tiny kolkhozy were converted into large enterprises adapted to the use of large machinery. While quarter-million-acre kolkhozy remained pleasant dreams, the average membership of a kolkhoz was increased $5\frac{1}{2}$ times; the average cropped land per kolkhoz grew tenfold.

There were three forms of kolkhozy before the big drive started, the commune, artel, and the TOZ. The communes in principle collectivized everything, including housing and meals; they were the most subsidized form of the pre-drive time. The TOZ, on the other hand as their full name implies, limited their activities to cooperative working of the land, the livestock having been used individually; even the field land of the members was usually not fully collectivized in them. The artel was intermediate between the commune and the TOZ.

The commune was out of place when the big drive was embarked upon. They were takers, while the drive was for creating givers. The TOZ also were dismissed. The rate of collectivization of farm operations in them was believed inadequate to ensure the obtaining of the desired quantities of farm products from the kolkhozy and the desired degree of dependence of the kolkhozniki on their kolkhozy. The communes and TOZ were converted into arteli in the same compulsory sweep of the whole drive.

While all land of the collectivized households, except apparently for the land under the dwelling houses, was declared as having been transferred to the kolkhozy, small lots of around an acre, adjacent to the house, and mostly coinciding with the former gardenland, were left in the possession of the kolkhozniki. The initial attempt to collectivize almost all livestock, in conjunction with acute feed shortage and general disorganization, led to the loss of about half of the total livestock of the country. In some areas the herds melted to 15 percent of the former totals. After this irreparable damage was done, the kolkhozniki were permitted to have a limited amount of livestock; in the principal agricultural areas the upper limit was set at one cow with offspring, a sow with its litter, 5 sheep, and an

unlimited number of rabbits and poultry per household. The latter does not imply that poultry farming was possible for the kolkhozniki; they could neither raise nor buy the needed feed. In the beginning the machinery was owned by the kolkhozy or their unions. Since 1930 the tractors and all tractor drawn machinery were concentrated in Machine-Tractor Stations (MTS); in 1932 these became the property of the state.

The Procurement System

The unfavorable experiences with the various socialized enterprises were probably the reason that, along with enthusiastic picturization of abundance of farm products for everybody as the outcome of collectivization, no chances were taken with reference to the marketings of the kolkhozy. A rigid procurement system had to ensure the delivery of products determined by the state without regard to whether the minimum needs of the kolkhozniki for food were satisfied. The priority of the state ("First Commandment") was indeed assured physically by the obligation—under heavy penalties—to turn over the first supplies directly from the combine, the thresher, the place of production in general. The needs of the kolkhoz itself for seed, feed, and the like were declared the "Second Commandment." The unfortunate kolkhozniki, who were made to invest practically all their capital and had to provide all the labor, had definitely the last claim.

An all-embracing direction, supervision, and control of all, even the tiniest, kolkhoz operations by the Party and State were necessary to ensure the 100 percent fulfilment of delivery regulations. The MTS became an important link of the directing, supervising and controlling machinery; their transfer to state ownership was effected for this very purpose. The kolkhoz officials are merely the lowest links of a highly centralized apparatus with the head in Moscow. Specifically, the right of the kolkhozy to elect their officials, especially the chairmen, is largely fictitious. The whole system is obviously a perfect breeding ground for the very abuses emphasized in the long list of orders, culminating with that of September 19, 1946.

The procurement system functions, although at an extremely high price, and a price which ultimately spells ruin and destruction. More farm products are extracted from the producers than they would have sold at any price. Moreover, while at first it was in-

tended to pay the unsatisfactory pre-collectivization prices for the supplies, the government made use of its strong grip on the kolkhozy and of the rapid devaluation of the Soviet currency, to let the real value of the prices paid by it to the kolkhozy and kolkhozniki for the deliveries of many products decline even more; for some of them, including the most important grain, prices became almost nominal.

In the last prewar years, i.e. before the pressure of war and the necessity of postwar reconstruction, the loss of the kolkhozy from the deliveries at low prices amounted to about 25 percent of their share in the volume available for sale and for the consumption in the farm homes. It was even officially proclaimed that only the small lots of gardenland and small livestock holdings permitted the kolkhozniki are serving their needs, the kolkhozy in the first place having to serve the needs of the society i.e., of the the urban population, industry, and exports. Only what is left, if anything is left, belongs to the kolkhozniki. While the proceeds are not assured to them, the kolkhozniki have to provide all the labor. This officially recognized serving of non-peasant needs by the kolkhozy, operated with peasant property and peasant labor, is the thing which definitely stamps the compulsory collectivization of the millions of one-horse peasants as expropriation.

Also, although only a tiny portion of the land formerly held by the kolkhozniki was left to them and they were permitted only a very limited number of livestock—with no feed for it assured—the kolkhozniki have been likewise obligated to make deliveries, in the case of potatoes and meat, without regard to whether they grew potatoes and had any livestock or not.

The successful competition of small with large farms, as observed in all the world, would have made the success of the collectivization doubtful, even if it were voluntary and the kolkhozy had to serve only the needs of their members. But this is more or less theoretical. The actual situation, when a large part of the kolkhoz output is being taken away at low or nominal prices, eliminated whatever chance there was for even a moderate success. It excluded the possibility that a large proportion of the peasants would be reconciled with the kolkhozy. After the cream of the kolkhoz produce is taken by the state, and the productive needs of the kolkhozy themselves are satisfied, so little remains as a reward for the kolkhozniki's labor that there is no way to ensure efficient

labor. The phenomenal cheapness of the kolkhoz labor leads, moreover, to its wasteful use.

Effect on Output

The pleasant dream of a huge boost in the output of farm products as the result of the socialization of agriculture brought only disappointment. The official figures on the output of farm products are unusable owing to exaggerations in the data for the years following the big collectivization drive. According to the writer's computations, the volume available for sale and for consumption on the farm home in the whole of agriculture increased by 14 percent from 1927 or 1928 to 1938, the years 1927 and 1928 having been about normal climatically and the computations for 1938 having been made under the assumption of normal weather conditions. The changes in total output give a reasonably good picture of the achievements of the kolkhozy proper. A considerable portion of the increase in farm output in 1928-38 consisted of the saving on the feed of workstock, replaced by mechanical power and having to be paid for by agriculture. The increase in national income from agriculture over those years was negligible.

Practically nothing was realized of the expectation that yields per acre and animal would greatly rise owing to the replacement of archaic production techniques by most up-to-date methods. The moderate gains actually made were fully or largely offset by wastefulness associated with large-scale farming and especially with Soviet large-scale farming.

The increase in output in 1928-38 consisted almost one half of fibers. The output of food per capita of total population actually declined. Moreover, the urban population in Russia, as in all poor countries, consumes much more food per capita in terms of value than the rural population. Since the urban population almost doubled over the period, the output of food per capita of the urban and rural population, reduced to a uniform basis, was cut drastically. The maintenance of even a greatly deteriorated diet in the cities has been assured only by a considerable deterioration of the diet of the rural population and this was enforced by the taking from the kolkhozy and kolkhozniki of much greater quantities than they would have sold voluntarily.

The expectation of a release of farm labor for industry on a huge scale did not fare better than the expectation of an immense in-

crease in farm output. The population engaged in agriculture on approximately full-time basis declined in 1928-38 by only 12½-15 percent; the decline in persons 16 to 59 years of age was equivalent to approximately 10 percent.

Meanwhile the suffering which accompanied the all-out collectivization considerably retarded the population growth. Also, while quantitatively the goal of a super-rapid expansion of industry was by and large attained, the expected great rise in labor productivity was realized only partly. Thus, in 10 years a surplus of labor counted in tens of millions changed to an acute shortage which led to the necessity of making work compulsory in all branches of the kolkhozy, to men and women alike.

Labor Productivity

In a previous study¹ the present writer showed the extremely low labor productivity in the kolkhozy in comparison with the productivity of farm labor in the USA. Although the family farm is almost the only existing form here and a huge number of American farms do not excel in efficiency, the analysis revealed that before the war the agricultural output per man and year was about 4½ times higher in this country than in the USSR. It is even more significant that the kolkhozy do not show a substantial superiority in productivity per man and year as compared with the *average* pre-collectivization individual peasants, and, since the productivity was much higher in large than in small peasant households, that the productivity of labor in the kolkhozy turns out significantly below that of larger peasant households. An increase of the output of farm products per person engaged in agriculture of about 30 percent is indicated by the data on output of farm products and the number of able-bodied persons in agriculture. This increase is however cut down substantially, if the output is excluded which is merely a replacement of other farm products for farm-produced draft power. Moreover, on a per-hour basis the labor productivity in the kolkhozy is about the same as it was in average individual peasant households, possibly even somewhat less than that.

At the first glance, the above statements seem unbelievable. The usual claim of Soviet publications that Soviet agriculture is the most mechanized in the world is incorrect. A great deal of mechani-

¹ "Labor Productivity in Agriculture in U.S.S.R. and U.S.A.," this JOURNAL, vol. XXVII, pp. 419-432.

zation was nevertheless effected, and there had also been a certain amount of other modernization introduced. Also, while large-scale output may not reduce costs, it should be confidently expected to curtail the labor output per unit of product. In Soviet conditions, however, those improvements and circumstances fail to yield the results observed in other countries—even in the production of small grains in which complete mechanization is easy and mechanization also gives the greatest labor savings. In kolkhoz operations taken as a whole the savings in productivity per man attained by mechanization and large-scale output are offset or overcompensated by the labor used on administration, supervision, and guards, and by the naturally smaller intensity of work for the kolkhozy than in the enterprises of the individual peasants. Also, the failure to attain an adequate output of farm products by natural means has necessitated the introduction or expansion of operations yielding a small reward for a great deal of work.

Even larger combine grain harvesters are, for example, used in the USSR than here. However, 5 to 6 men are found on the outfit as against 2 men here. Moreover, rather than delivery directly to the station elevator, the threshed grain is hauled to a special place in the field, where it is dumped on the ground and cleaned by hand and, since a large proportion of it is wet or damp, it is dried also by hand (shoveling). The straw and chaff are saved in a similar wasteful manner, and the whole crew in combining consists of 15 to 20 persons as against 2 to 4 here.

Furthermore, even small grain is weeded by hand, while leftovers in the field are saved not only with machines, but by hand picking as well. All in all, in small-grain and similar crops, the only branch of farm activities in which the kolkhozy are significantly superior to the average individual peasant, this superiority is limited to one-third, or a little more, of the labor input of the latter. The kolkhozy are not superior to individual peasants in the production of row crops and in the care of the livestock; in the latter they are probably even inferior.

All in all, the advantage of the kolkhozy is limited to the fact that they have permitted a much greater use of the available farm labor during the year. The number of days worked per able-bodied person increased from an average of 135 to 140 before the collectivization to about 200 in 1938. The increase in the number of hours worked per year was not quite as large but probably not less than

by 30 percent, i.e. by the same percentage as the overall increase in the output per man and year, computed in the preceding section. If from the increase in output that portion is deducted which was simply utilization of the feed released by mechanization, the increase in the total number of hours worked almost certainly exceeded the increase in output.

The operations of their own by the kolkhozniki are of the tiniest proportions. As was shown, their land averages only about an acre; it is moreover cultivated almost exclusively by hand. The livestock of the kolkhozniki in the principal agricultural areas at best consists of a cow, a heifer, a sow with 1 to 2 piglets, and a few sheep and chickens. Yet the labor productivity of the kolkhozniki in the operations involved in the kolkhozniki's own enterprises is so amazingly small that, as official data show, the labor productivity of the kolkhozniki in their own enterprises is little, if at all, inferior to that in the kolkhozy.

The rapid increase in operations requiring much labor and yielding a small reward such as hand picking of heads or hand weeding; the more rapid expansion of the animal husbandry than crop production in the kolkhozy; and similar factors have resulted in the labor input in the kolkhozy in terms of hours increasing more rapidly in the 'thirties than the kolkhoz output, in spite of progress with mechanization and other improvements. In any case, output per hour did not increase over the period.

Kolkhozniki's Reward

The "trudoden," in Russian workday, is used as a unit for measuring the labor of the kolkhozniki. The various operations are divided in 7 groups and a workday in each of them is counted as one-half to 2 trudodni, the reward of the tractor drivers being subjected to special regulations. The net proceeds of the kolkhoz in a given year is divided by the total number of trudodni and thus the reward per trudoden is established. Before 1938, the trudoden was the only basis for the distribution of the kolkhozniki's share in the kolkhoz income and still is the principal basis. The trudoden was indeed endlessly proclaimed the link between the kolkhoz and the kolkhozniki.

The cumulative effect of the great losses involved for the kolkhozy in the obligatory deliveries and the low labor productivity in them is an amazingly small reward for that labor, whether

counted in *trudodni* or workdays. The year 1937 was certainly the best one of the collectivization period. While 1938 was unfavorable climatically, the receipts of the *kolkhozniki* from their *kolkhozy* were not less than in 1939 and 1940 and may have been larger. If all receipts from the *kolkhozy* except the value of the pasture for the livestock of the *kolkhozniki*, but including the value of the food used by the *kolkhozy* for feeding the workers in the fields as well as in nurseries, and the theft of the *kolkhozniki* from their *kolkhozy*—expressed in prices of 1926/27—is divided by the number of days worked by the *kolkhozniki*, the result is in kopeks (cents in parentheses) per workday:¹

<i>year</i>	<i>trudoden</i>	<i>workday</i>
1937	50 (24)	67 (33)
1938	32 (16)	43 (21)
average	40 (20)	55 (27)

The figure of 55 kopeks per day, which most certainly was the highest average reward of the *kolkhozniki* in any two years, compares with about 130–135 kopeks—the average income of all peasants from agriculture per workday in 1927/28.² The income of the *kolkhozniki* from their own enterprises, after the loss on obligatory deliveries is deducted—computed in 1926/27 prices—amounted to 120 to 130 kopeks per workday.

Complete data on the distributions among the *kolkhozniki* are not available for any other year. But an idea may be formed from the distributions of grain, the far most important product among those distributed. The distributions of grain per *trudoden* averaged (in kilograms):

1932	2.3
1933	2.9
1934	2.8
1935	2.4
1936	1.6
1937	4.0
1938	2.2
1939	1.9

¹ The number of *trudodni* and workdays worked is official. The distributions among the *kolkhozniki* has been largely estimated on the basis of official data. Some official basis was also available for estimating the feeding by the *kolkhozy*. The estimate of the stolen products is a stab in the dark.

² The indicated large decline in daily earnings of the *kolkhozniki* from 1927/28 to 1937/38 implies an even poorer showing of the *kolkhozy* in labor productivity than that revealed by the analysis of output per hour of work. The share of the state in the *kolkhoz* income as computed above at about 25 percent likewise appears underestimated.

About $1\frac{1}{2}$ trudodni were earned per workday on the average in 1938; this represented a moderate increase over the earlier years. In spite of this increase, the distributions of grain per *workday* in 1938 and 1939 were not larger than in the first years of the collectivization era with their immense disorganization and low yields. The distribution of animal products, always very small, declined strongly over the 'thirties. Total distribution at best remained unchanged.

The reward of the kolkhozniki for their labor from the kolkhozy became a strongly guarded secret when the war started. A severe drop in it was the reason for the secrecy. In 1946 the reward per trudoden did not exceed half of the prewar average. The reward per workday dropped less but here too the decline was large.

The low reward of the kolkhozniki for their work in the kolkhozy justifies the comparison of the relationship between the kolkhozy and kolkhozniki and landowner and serf before Emancipation in 1861. While the landowner did not pay the serf for his labor, he asked for less labor and allowed the serf several times more land. The low payment of the kolkhozniki is not only a moral question, the same negative effects on the labor productivity which were brought about by the serfdom, are now observed in the kolkhozy.

The Fight for the Kolkhozniki's Labor

The Russian landowners had very strong means to compel their serfs to work—up to corporal punishment, having them put in jail, or delivering them for 25-year military service. Yet labor productivity was low, the whole cultural level was at a corresponding level, and the result was general weakness of the state which ultimately led to the loss of the Crimean war and the emancipation of the serfs. The fate of the Russian serfdom was of course only a repetition of the phenomenon observed over the whole world. Everywhere serfdom and slavery turned out to be ineffective, an impediment to progress, and was ultimately abolished on these grounds more than because of moral considerations. How are the Soviets solving—or better to say trying to solve—the problem of assuring sufficient and efficient labor at the amazingly low reward the kolkhozy are able to pay to the kolkhozniki?

Obligation to work.—The 1930 charter of the agricultural artel was content to state that all kolkhoz operations are performed by the personal work of the members and that the members were not sup-

posed to refuse the work assigned to them. In 1933 it was found necessary to specify the measures against kolkhozniki not complying with that obligation, but the measures were relatively mild.

By the order on Measures Toward Safeguarding the Collectivized Lands of the Kolkhozy From Squandering, of May 27, 1939, there was established at a time when World War II had not yet started even outside of the USSR, minima for the kolkhozniki's labor for their kolkhozy. In the principal agricultural areas the minimum was 60 trudodni, equivalent to about 40-45 workdays for men and 45-50 workdays for women; expulsion from the kolkhozy accompanied by the dreaded loss of the gardenland, were the punishments prescribed.

The measure was mainly directed against the farm women; practically all men were working full time in the kolkhozy. This explains the obvious unfairness that the minimum to be worked in terms of workdays was even higher for women than for men. One would expect the opposite. The Russian peasant woman certainly works hard. The gardenland of the kolkhozniki and their livestock are taken care of almost exclusively by women. In addition to this work, their heavy home work, and some work out of the kolkhozy every able-bodied woman averaged about 100 days for her kolkhozy in 1938. The new order was directed toward only 29.3 percent of all able-bodied women, 7.9 percent not doing any work for the kolkhozy in 1938, and the rest earning less than 50 trudodni. Moreover, part of the 29.3 percent had a legitimate excuse such as working for a state farm or in a state factory (work in their own enterprises and home work are not legitimate excuses). But with the failure of the kolkhozy to attain an even moderate efficiency of labor, it was believed unbearable that even a single farm woman would restrict her activities to tending the garden and livestock of the household and her home work. Significantly, the compulsion of the farm women to work for the kolkhoz, in addition to their other heavy load, passes in the USSR as liberation of the woman. In 1942 the minima of obligatory labor were raised substantially, the 60 trudodni minimum to 100 trudodni. A minimum of 50 trudodni, equivalent to about as many workdays, was newly established for children of 12 to 15 years. The 1942 regulations were still in force in 1947.

While the city workers had a 7-hour workday before 1940, and have to work eight hours since, the kolkhozniki are supposed to

work from sunrise to sunset. Even stronger efforts have been made to enforce this obligation, as well as to cut down on interruptions during the workday. For harvest time a 15 to 16-hour workday has been aimed at since the late 'thirties; and no exception is made for women and children.

Payment for work done.—The principle: "Everybody according to his ability; to everybody according to his needs" established by the Revolution, prevailed in the kolkhozy long after it had been abandoned elsewhere and is believed the principal reason of the lack of progress with them. The big collectivization drive in any case was conducted under the reversed principle: "To everybody according to his work; who does not work, gets nothing." In practice this meant establishment of norms for daily performances and piece-work. All inclusive piece-work was indeed proclaimed indispensable for attaining efficient labor in the Soviet economy, although at least some capitalist countries manage to attain efficiency with simple per day or per hour pay. The piece-work system did not produce great results partly because of bureaucracy. Also, much work is not suitable for payment on a piece basis. The principal reason, however, was that the payment per trudoden, or as they say in Russia, its value, is too small to be an adequate stimulus for fulfilling and overfulfilling the norms. Since this fundamental obstacle can not be eliminated, remedy is sought in refinements of the piece-work system.

Premiums for overfulfillment of the norms and especially for attaining definite results, have to be relied upon to accomplish that which is not reached by straight piece-work. First the premiums were in trudodni, but in 1938 a start was made with premiums in kind. In 1940 the premium system—with payment almost exclusively in kind—was recommended for all products, payable for attainment of yields of crops, milk, eggs, and so on, per hectare or animal in excess of the plan (for mortality and similar negative factors below plan). Not only the immediate performers but their supervisors, the supervisors of the supervisors, as well as assistants, such as shepherds, are entitled to the premiums. The premiums are quite substantial, totaling for all persons involved up to 75 percent of the excess output.

An inherent weakness of the premium system as applied to crops is that their outturn largely depends on the weather. In bad years

climatically, when there is no prospect of exceeding the planned yield, the premium system fails to function. A great drawback of the premium system as applied in the kolkhozy is furthermore that they make the rewards of the kolkhozniki even more unstable than it was made by the procurement system. In good years climatically there is prospect for premiums in addition to relatively large distributions per trudoden. In bad years the lack of premiums is associated with low distributions. It is obvious that premiums not depending upon the man himself, should be applied only in so far as the minimum requirements are covered without the premiums. In the kolkhozy of the Soviet Union the premiums are part of the coverage of unreducible requirements.

The principal adverse effect of the premium system is that it further undermines the "value" of the trudoden, proclaimed the link between the kolkhozniki and their kolkhozy. Premiums can not be applied to many operations. The contribution of many workers to operations involving premiums are to indirect; the expectation of premiums does not induce them to more or better work and, when the "value" of the trudoden is small, these persons try to shirk the work for the kolkhozy. All in all, the gains attained by the premium system in encouraging better work may easily turn out as not offsetting the reduced willingness caused by a further reduction in the "value" of the trudoden.

In spite of these obvious shortcomings, the premium system is one of the cornerstones of the agricultural program and progress in the 4th Five Year Plan and the later Party decisions which are supposed to be reflected in the improved 1947 harvest. Actually, the pre-premium system, declared as highly inadequate, continues largely in force, because only a minority of the kolkhozy adopted the premium system and those, which adopted it, mostly apply it only to part of their output, frequently only to a few products.

Outside economic pressure.—One of the principal considerations for the suppression of the TOZ was that too much economic power was left to the kolkhozniki, which implied too little necessity for them to work in the kolkhozy. When it was finally believed inevitable that the peasants must have their own gardenland, strict upper limits were established for these holdings by law. Only the prospect that there would be no livestock at all compelled reversal of the early policy of collectivizing practically all livestock. While a favor-

able attitude toward the livestock of the kolkhozniki was taken for a time, the very low upper limits for such holdings were established as safeguards.

By 1938 the need of the kolkhozy and the industry for the labor of the kolkhozniki had become acute. Also, the kolkhozy were sufficiently organized to take care of increasing herds—in their by no means efficient way—and the feed reserves were by and large exhausted. Hence the former policy of expanding both the kolkhozy and the kolkhozniki's herds was replaced by one of expanding the kolkhoz herds partly at the expense of curtailing the kolkhozniki's herds. The new livestock policy was pursued—with increasing vigor—even during the war and recovery with very "gratifying" results.

With reference to the gardenland, the new policy was limited to taking away from the kolkhozniki of the land held by them in excess of the low limits permitted by the 1935 Artel status. It was certainly a severe blow to the kolkhozniki when as a result of the order of May 27, 1939, around 2 million hectares of gardenland were taken from them. This acreage maybe compared with their total cropped plowland in 1938 of only 5.3 million hectares and a total holding of 8.5 million hectares in that year. The campaign for taking away from the kolkhozniki land in excess of the permitted limit was repeated in the order of September 19, 1946. This time the returned land amounted to about 800,000 hectares or, according to another source, even to only little more than 500,000 hectares (1½ million acres).

In an address given on June 12, 1947, Edward Crankshaw¹ said: "The people are hungry, weary, starved of colour, bewildered and desperately frightened" (p. 499). Also: "People are ill and unable to work for lack of food in certain areas" (p. 495). The situation observed by Crankshaw was due to some extent to the poor weather conditions for the 1946 crop. The Soviets were even overemphasizing the effect of the weather to conceal the fact that continued armament production on a very large scale, greatly delayed reconversion of the farm-machinery industry, and very slow demobilization of the armed forces were major contributing factors in the poor 1946 farm output. In any case, the Party realized perfectly well how immensely important was, and will be for several years

¹ "The U.S.S.R. Revisited," *International Affairs*, XXIII, Oct. 1947. The revisit occurred in March-April, 1947.

to come, every additional bushel of potatoes grown. Yet the first reaction to the 1946 crop failure was the order of September 19, 1946, providing for the taking away from the kolkhozniki of every piece of land, however small, held by them in excess of the tiny allotments permitted by the 1935 status of the agricultural artel. The Soviet economic situation necessitates that the kolkhozniki be prevented from producing the badly needed additional bushels of potatoes. With reference to a country having an economic structure as unsound as this, a careful observer should refrain from long-range forecasts of the type mentioned in the introduction.

NOTES

ANCIENT AND MODERN SWEDISH LAND TENURE POLICY

*From Heathendom through the Middle Ages and
Modern Times to 1907*

EARLY vikings were free peasant proprietors of their farms, which they operated with slaves (*trålar*) of different grades. Many well-serving slaves were given their freedom and small places to farm for their own subsistence. They were expected, however, to stand ready to serve whenever their former masters had need for them.

Land tenure relations were dealt with in the earliest legal regulations in Sweden, being handed down from father to son by the "lawmen" (*lagman*). In the 13th and 14th Centuries the first written law codes appeared. These first legal regulations (*landskapslagarna*) contained stipulations for landlord and tenant of a fair and democratic character, dividing the produce of the land equitably between the two parties. Later on in the Middle Ages the landlord rose in social importance and political influence in relation to his tenant. The tenant's condition and status continually declined by the imposition of new services. The Catholic Church later became by far the largest landlord and next to it the "King and Crown" became a great landlord, measured either in terms of the land area dominated or by the number of tenants on their vast domain. Also, the land in the possession of the Nobility was steadily increasing as well as the number of their tenants, who paid rent by shares, by working for their landlords, or in other ways. The latter tenants together with their masters were supposed to be exempt from paying taxes to the Crown.

The reign of King Gustaf I of Wasa 1521-1560, after driving out the Danish intruders, built up the State of Sweden as a strong and autocratic realm by effecting great progress and stabilization throughout all of Sweden. The nation progressed and prospered for almost 300 years. Much land was now owned by the King and Crown, having swallowed up the domains of the Church. The "free" farm land for fiscal reasons was divided into "tax-units," viz. farms of peasants who were proprietors of their land, and which were of a size big enough to support the peasant, his family, farm

hands and livestock. These tax-paying peasants were forbidden to increase the size of their farms beyond the prescribed limit except by bringing new land into cultivation. They could not sell off parts of their tax-units, and finally, in 1551, King Gustaf prevented them from leasing any part of their land to others, it being declared by the King "an improper thing that one peasant should draw rent from another."

The already expansive Crown land was vastly increased by King Gustaf I when he abolished Catholicism for Lutheranism and made the latter the faith of the State Church of Sweden. As a logical consequence the King declared himself and the Crown lawful proprietors of the immense domains of the Catholic Church. He also decreed that all land not previously taken in private possession was to be regarded as property of the Crown, and he confiscated the lands of his pro-Danish opponents. But the King was not satisfied by these enormous acquisitions. His theory of land tenure was that of the feudal system then invading Europe. He held that all land privately owned must in reality be held in a condition of tenure under the supreme power of the State, and that the proprietors as the State's tenants not only had to make certain contributions to their overlord but were also answerable to him for the condition in which they kept their land.

"Our tax-peasants have to farm their land properly and keep good and sufficient stock thereon, construct the necessary houses and barns and maintain and repair the old ones. If not so, we will take their land from them and lay it under Ourselves and the Crown." In these words King Gustaf in 1541 spoke to his loyal subjects. These autocratic principles remained dominant through all the 16th and 17th centuries. The tenants were made subject, from time to time, to more severe regulations in favor of their landlords—the Crown and the landed proprietors among the Nobility. Tenants were forced not only to improve their land and maintain its buildings but also they were required to construct necessary new ones, all at their own expense.

Besides seizing the farms and estates of the pro-Danish opponents among his countrymen, King Gustaf rewarded with land his friends and helpers in the fight for the liberation of Sweden from the Danes. He also used part of the crown-land as wages for his higher functionaries. In addition he erected in all parts of the country bigger crown-farms or "king's farms" which were operated

under the supervision of royal bailiffs. When, however, the bailiffs proved dishonest, they were replaced by "crown-renters" under the royal Treasury. The crown-renters, as well as the forever-increasing number of "crown-peasants," were exempted from paying to the crown any taxes in addition to their annual rents. In the beginning the crown-renters and crown-peasants paid chiefly share rent, but in 1619 they began paying cash rent, or its worth in products, as required by Gustaf II Adolf, grandson of King Gustaf I.

The landed proprietors of the Nobility were also exempted from paying taxes. Instead they were supposed to do military service for the king and to raise and equip at their own expense contingents of armed men. The great majority of small farmers were "tax-peasants" who bore the major part of the direct taxes. In reality tax-peasants may be regarded as a second category of crown tenants, paying their rent in the form of a yearly tax and in addition rendering onerous services, such as housing and conveying the king's messengers.

The end of Sweden's external greatness was brought about by the almost "unconditional surrender" terms in the peace of 1720 after the great warrior King Charles XII had fallen on the battlefield in 1718. Subsequently many changes for the better were effected by ameliorating the hard conditions of all classes of tenants throughout Sweden. The great turning point was the historical session of Parliament in 1789 during the reign of liberal minded King Gustaf III. The most important changes in old land tenure policy were: (1) *Tax-peasants* were restored their full right of disposition of their farms. They could sell their holdings as whole tax-units, although they could not yet partition them for sale. The right to lease tax-peasant farms had already been granted in 1719. (2) *Tenants in general* were exempted from the obligations of improving their land and buildings beyond the condition in which they were found when the farm was taken over. (3) *Crown-tenants* were awarded a limited right to become proprietors of their rented land by buying it free as tax-land. This concession, in the course of the next hundred years, brought enormous sums into the Treasury. (4) *Hereditary right of lease* within the family of a crown-tenant, which until then was permitted only by tradition, was formalized by law as a legal right.

There were some of the most important changes wrought in the agrarian tenure structure of Sweden under the influence of the lib-

eral ideas revolutionizing Europe at the end of the 18th century. Only 20 years later the way was opened for dividing and splitting up the old farming units of Sweden. This tendency, at an always rising degree, has been characteristic of the following 100 years and even up to the present time. It started in 1810 when "plain people" were permitted to buy the "sacred land" of the Nobility. This was followed up in 1827 when tax-peasants were granted the right to sell part of their former tax-unit farms.

Tenure conditions in the 19th century

Southern Sweden. As a consequence of the liberal land policy the number of landowners in Southern Sweden was rapidly increasing. The former tenants became proprietors of the farms which they had formerly rented from the Crown or the Nobility. Contrariwise, in the northern provinces conditions developed in an opposite direction, as we shall see. The legal position of all classes of renters was generally still unsettled in many regards. This was especially true of the great number of tenants on small "places" (torp) under the old mansions of the Nobility and under other large farm units. They paid for their lease, that is, their rent was paid by working a certain number of days on the main farm. This system of renting was abused in many ways, and it was rapidly becoming a national problem. In many cases the very poor tenant was at the mercy of his employer who expected the tenant to appear on the main farm at his bidding. The tenant was thus prevented from properly farming his rented land. The payment for the extra work services of these tenants was usually fixed beforehand at a low rate. These and other problems in connection with the renting of land became more acute as the years passed.

The North-Land problem. Into the vast provinces that lay between the 60th and 64th degrees of north latitude, with their ore-holding mountains and immense areas of woodland, hardy and industrious settlers had found their way from the South. They had broken up small fields of arable land which were surrounded by mighty woods that covered by far the greatest part of their farms. It was only in the course of the 19th century when the world's market was opened for Swedish wood products that capitalists began to take an interest in the enormous economic opportunities up in the far North which were waiting for exploitation by enterprising men with money enough to invest in mines and saw mills. They

soon found out that the easiest way to obtain the land was to tempt these honest peasants with ready money, which until then they had seen but little of. Their farms were purchased; the woods were cut down, and the denuded farms were rented to anybody, whether interested in farming or not, who turned up and who was willing to pay for the lease by working for the company. The result was the formation of big mining and saw milling companies with hundreds of square miles of woodland and hundreds of small tenants with insufficient land to live on. These tenants were bound to work for the company at such wages as it found suitable to offer them. Tenure problems were thus especially accentuated in Northern Sweden.

Social Problems. With this background the new tenure policy envisaged protection for the renter against anti-social land-owners, whether impersonal ones such as companies and foundations or private ones supposed to be mere speculators and indifferent to rural wellbeing and conservation of the land. The new tenure policy also asked for a control over land use in order to prevent the tenant from mismanagement and exploitation of the land. Below is a brief summary of modern tenure legislation in Sweden, which was designed to give a positive solution to the many problems connected with the leasing of land in the different parts of the nation.

*Modern Swedish Tenure Policy as Characterized by Tenancy
Regulations from 1907 to the Present Time*

Modern tenure legislation, based on sound principles of national economy and social consciousness, dates from the year 1907 when the Parliament voted the act entitled, "General Law Regulations for Lease of Farm Land in Northland" with its appendix "Law Regulations for the Supervision of Certain Categories of Farms in Northland and Dalecarlien." These two laws were complemented by "Social Law Regulations regarding Tenure" and the law of 1909 that dealt with special categories of farms and farm owners. In a category all by itself stands a law appearing in 1925 according to which a renter under certain conditions could be awarded by pre-emption the right to become proprietor of the farm rented by him. The contract of lease had to be valid for his life time, and he had to own a house on the farm sufficient for himself and his family and of a value at least equal to one fourth of the value of the land and the buildings thereon.

In spite of the enormous thought and effort and numerous provisions laid down in all these acts of Parliament for solving the complicated tenure problems of modern Sweden, practical experience in many cases proved that mistakes had been made which still must be mended. The parliament therefore in 1936 nominated a special Tenure Commission which in 1938 presented its report together with a proposition for a thorough-going revision of the different acts referred to and their compilation into one code. The commission made a thorough study of tenure conditions not only in Sweden but also in Denmark, Norway, Finland, the Baltic States, Poland, Germany and England as a foundation for their report. After being considered by the different committees of parliament the tenure commission's report was laid before the Parliament in 1943, and with certain amendments it was voted into law the same year.

Extracts of the present Tenure Code in Sweden

The most significant provisions of the 1943 tenancy law may be summarized briefly as follows:

1. These regulations are concerned with every form of lease whereby an owner in some way or another leases his land to a renter, regardless of the length of period.
2. A contract of lease is valid only in written form. (The owner upon his renter's request is bound to sign a contract.)
3. The rent must not be paid by the renter working for the owner. Stipulations for a certain amount of work to be executed for a landlord by his renter may be included. But the wages paid the tenant must be in accordance with those paid for corresponding work at the actual time the services are rendered and cannot be at a wage fixed beforehand.
4. Regardless of any stipulations in the contract to the contrary, the renter in no case shall be prevented from properly attending to his own farming by any requirement regarding work services that he is supposed to perform for the landlord. The tenant also is free to work off the farm for others.
5. If no period of time is fixed in the contract, the renter is entitled to occupy the farm for a period of 5 years, and in case he is not given a notice of termination before a prescribed day, he may remain for the following 5 years also.
6. The renter is responsible for damages and dilapidation caused by bad management on his part. But on the other hand, he has the right to ask for compensation for certain unexhausted improvements that he has made, for example, the cost of tile for the drainage of wet land, and materials for manure pits if properly designed and executed. Also, if the renter can prove

that in other respects he has raised the value of the farm, he has the right to ask for a certain compensation from the owner.

7. The rent for the land must be fixed in terms of money only. If the rent is specified in other terms by contract it has to be translated into its monetary value which is to be based on conditions obtaining at the time the contract was signed. In other words, paying the rent in fixed amounts in kind, or by shares, is prohibited by law in Sweden. This provision was founded on the supposition that a rent in products represented by shares of crops or livestock will prevent the renter from seeing clearly the obligations that he enters into when signing the contract of lease.

8. A written report of an examination of the conditions of land, buildings, fences, etc. by two impartial men at the beginning and cessation of the lease is the sole conditions upon which either party can found a claim for compensation in any respect.

9. Houses for workmen on the farm when defective shall be repaired and, if necessary, new ones shall be constructed by the owner, regardless of stipulations in the contract to the contrary.

10. The renter within certain limits is free to break up new land for ploughing or pasture.

11. The contract of lease is valid for the period stipulated against an eventual new owner.

12. In case of bankruptcy on the part of the renter and when the period of the lease embraces more than 10 years, the landlord may give notice and retake the farm by compensating the bankrupt's estate in an amount that corresponds to the value that the contract may be considered to represent for the remaining part of the period.

13. The owner may give notice to the tenant and retake the farm in any of the following cases:

(a) If the renter fails to pay his rent in due time or does not in a satisfactory way fulfill his work or other duties outlined in the contract.

(b) If he neglects to maintain the land and buildings or to tend the stock belonging to the owner and fails to heed admonitions from the latter in these regards.

(c) If he disposes of the farm otherwise than is stipulated in the contract.

(d) If without the owner's consent he cedes the lease or sublets the farm or any part of it.

(e) If he carries off the farm straw, hay, or manure.

(f) If he causes damage to the game of the owner, or goes shooting or fishing on the farm or other land belonging to the latter without his permission.

(g) If he neglects to comply with a request from the owner to give notice to anybody in the tenant's service who commits such trespassing.

(h) If he himself behaves or suffers others to behave offensively to public order on the farm.

(i) If he neglects to fulfill stipulations of special importance to the owner as provided for in the contract.

14. The owner must not ask that more work be executed by his renter than is stipulated in the contract. The days that the renter is to work for

the landlord shall be fixed beforehand and shall be equally distributed within certain fixed periods.

15. The renter has the right to give notice in case the owner does not fulfill stipulations in the contract for providing him with a certain amount of work to perform; the owner has one month to make up for this deficiency. In any case the renter can ask for compensation for an eventual loss on his side provided the loss is of some importance.

The following stipulations, being of a social and therefore obligatory nature, are concerned only with "places" or farms of less than 125 acres of arable land, provided: (a) the owner is an incorporated (limited) company, an association, a foundation, or an institution; (b) the land is a part of a manor or an entail estate; or (c) the owner may be supposed to have but a speculative interest in his land.

1. The period of the lease shall be no less than 5 years regardless of other stipulations in the contract. When the period of lease has expired the renter "by right of option," may occupy the farm for another 5 years and so on until one of the following instances occur:

(a) The renter gives notice at least one year before his period of lease expires. If not he has to occupy the farm for another period.

(b) The renter neglects his contracted duties in which case he may be given notice to vacate by the owner.

(c) The owner wants to occupy the farm, or some near relative of the owner wants to take over the farm on a lease.

(d) The owner offers the farm for sale, in which case the renter has the right of pre-emption if he wants to become proprietor instead of renter. (For details regarding the pre-emption right in such cases see a special law of 22nd December 1943.)

2. The owner by giving notice 8 months before the period of the lease expires has the right to ask for amendments to the stipulations and also for arbitration of the matter in case the renter is not complying with his demands. (Matters of arbitration regarding tenure and other questions of an agrarian nature are left to special land commissions constituted in the different provinces.)

3. Owners of farms situated in the northern provinces enumerated in a special paragraph are obliged to leave their renters free to take the wood necessary for fuel, tools, fences, etc. for use on the farm.

4. The rent shall be fixed as to its amount in cash as provided for under 7 above. In case of failure of crops a reasonable reduction in the year's rent shall be granted the renter.

SUMMARY

We have seen how the evolution of Swedish Tenure Policy has fluctuated from early democracy to hardboiled conservatism to utmost liberalism and finally to modern rationalism. It started in

heathen times from a democratic level the relations between landlord and tenant being of a patriarchal nature. In the course of the Middle Ages the former rose in importance until in the 16th century. On the threshold of the Modern Age the newly-founded autocratic kingdom established the Crown and the Nobility as supreme landlords over their humble tenants. The latter were deprived by degrees of most of their independence and had imposed upon them all kinds of contributions in addition to their rent; they were told how to farm their land, how to tend their flocks, and how to construct their barns.

By the end of the 18th century liberal ideas had turned the tide. Individuals by degrees were left freer and freer by the State to arrange the relations among themselves regarding ownership of land as well as matters of tenancy. During the course of the 19th century all of these relations developed in an unfavorable direction from a social point of view. Capitalists more and more took the lead in creating a growing proletariat of farmers' hands (*statare*) together with thousands of small tenants (*torpare*) onto "places" (*torp*) of insufficient farmland and dilapidated barns and into a hopeless treadmill of work services. They also tempted the brave settlers and makers of new farms in the wild forests of the northern provinces to sell their landed birthright for a mess of pottage. By and by, however, the gigantic industrial undertakings of all kinds which were developed by a combination of capital with modern technology created a new class of workers who understood how to offer resistance to their powerful employers. This new class built up the workmen's unions to a political force strong enough, by aid of the liberal party, to attack the land monopoly held by the large estate owners and the big companies with the banks behind them. The time had come to support the small renters against the supremacy of their landlords by new tenure legislation. But during this time the national economists were beginning to pick up the 400-year old ideas of old King Gustaf and to point out the necessity of preventing the land from declining in fertility because of anti-socially minded owners and incapable renters.

The "social" tenure regulations of 1943 put this new policy into effect. But the national economists and agricultural leaders did not stop at that. Their interest was focused more and more on the tenure question, which as yet had not been solved. The new tenure law is to be regarded only as the first step in the construction of a

far more socially accentuated land policy, which is outlined in a parliament act of this present year of 1947. Under certain conditions this recent act gives the State the right of pre-emption in acquiring farm land offered for sale as well as the right to appropriate land from its present owners in case of mismanagement on their part. This new legislation also forshadowes the formation of cooperative farms by rural people interested in collective farming. Whether such collective farms will be based on ownership of the land, or as the circumstances are in Russia on a system of tenure on "state-land," or also on land in private possession as in Italy (the "co-operative de operai") will be a matter of further consideration and experimentation.

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MODIFYING THE FEDERAL INCOME TAX TO PROMOTE GREATER STABILITY OF FARM INCOME*

DURING the past few years of favorable farm income, many farm families have made substantial payments of Federal income tax. Relatively favorable ratios of prices received to prices paid, coupled with better than average crop yields, have markedly changed the situation of the 1930's when few farm people found it was necessary to pay an income tax. Income then would not have been taxed in many cases even under the present provisions of the Federal income tax.

The tax payments which recently have been flowing into the Federal Treasury from agriculture are in sharp contrast to the Federal expenditures for agricultural relief during the early thirties. Net Federal expenditures for agricultural relief over the six year period 1931-36 were \$613,766,000; income tax payments by farm families, which were negligible until 1941, are estimated in total at \$2,210,000,000 for the period 1941-46.¹ In effect, relief payments during the years of low farm income, together with tax

* This paper represents the author's personal views on the problem under discussion.

¹ The figure given for relief payments includes relief loans as well as grants; see *The Report and Recommendations of the President's Committee on Crop Insurance, House Document No. 150, 75th Congress, 1st Session*, pp. 17-18. Some Federal expenditures for agricultural relief were made after 1936, but there is no official estimate of the amount. Estimates of farm income tax collections have been made by the Bureau of Agricultural Economics, and are "tentative."

collections in the more favorable years, have served to even out some of the irregularity of farm income over the past twenty years.

This irregular income pattern, characteristic of the many types of farm production where yields vary greatly from year to year, is an important agricultural problem. Policy measures that reduce

TABLE 1. HYPOTHETICAL NET INCOME OF TYPICAL SOUTHERN PLAINS WINTER WHEAT FARMS UNDER TWO ASSUMED PRICE LEVELS, 1930-46¹

Year	Net income per farm ²	
	Assuming 1946 prices paid and prices received	Assuming average 1935-39 prices paid and prices received
	<i>Dollars</i>	<i>Dollars</i>
1930	4,868	1,607
1931	5,142	1,748
1932	4,141	1,368
1933	2,348	715
1934	3,357	1,131
1935	1,381	239
1936	2,476	698
1937	1,211	129
1938	2,249	489
1939	1,877	474
1940	1,784	368
1941	4,461	1,650
1942	6,325	2,339
1943	8,275	3,136
1944	7,665	3,185
1945	10,013	3,965
1946	10,818	4,340
Average 1930-46	4,611	1,622

¹ The "Southern Plains" denotes the winter wheat area of southwestern Nebraska and western Kansas.

The writer is indebted to Wylie D. Goodsell of the Bureau of Agricultural Economics for the yield and expense data on which these series are based. Actual income earned over the period and other characteristics of this group of farms are shown in two publications of the U. S. Department of Agriculture: *Typical Family-Operated Farms, 1930-45, Adjustments, Costs and Returns, F. M. 55*, pp. 66-69, and *Farm Costs and Returns, 1945 and 1946, F. M. 68*, pp. 10-11.

² Crop acreages, livestock numbers and other characteristics of the farm organization were changed each year in keeping with the changes that occurred over the period in this area. Net farm income is the net cash return from Government payments and the sale of crops, livestock and livestock products after cash expenditures and rent and interest paid by the farm operator have been deducted.

the uncertainty of farm income and promote a more even flow of income over the life-span of farm operations are desirable, particularly for those areas where the yield variability and consequent income instability are great. The Federal income tax deserves particular consideration from this point of view.

An Illustration of Income Variability

The effect of crop yields as a source of the variability in farm incomes is illustrated by the following series of data for a group of typical winter wheat farms in the western Great Plains. Annual income and expense data covering the period 1930-46 for a group of typical farms in the Southern Plains winter wheat area have been adjusted to reflect (a) prices paid and prices received in 1946, and (b) average prices paid and received during the period 1935-39. The net income series shown represent the effect of yield variations on income at two different levels of prices.

At each of the assumed price levels, the income of this group of farms for eight continuous years (1933-40) would have been much below the average for the 17 year period. Even with the relatively favorable prices of 1946, low yields would have reduced the income in seven of these years to less than \$2,500. The need for bridging this gap by transferring income from favorable to unfavorable years is obvious. A typical wheat farmer in this area, on the basis of 1946 prices, could look forward to an average income of over \$4,500. But he must also expect many years when adverse weather and other hazards will reduce his income to a much lower level.

The income data presented in this illustration form a more irregular pattern than would be found in some other types of farming. Typical dairy or livestock farms are not subject to such extreme yield fluctuations. To some degree, however, income instability as a result of crop hazards is a problem throughout American agriculture. Also, the variations in prices from year to year, which were excluded from the illustration, have been an additional source of income instability.

An indication of the actual income variability over the period 1930-46 for farms of four different types, each representative of a major type-of-farming area, is given by the indices of net cash farm income shown in table 2. Net cash farm income, on which these indices are based, represents the difference between cash receipts, including Government payments, from the sale of crops, livestock, and livestock products, and cash expenditures for items of production expense. Since cash receipts and expenditures have been calculated in terms of the current prices of each year, these series reflect the influence of both yield and price fluctuations.

Over this period, there were marked differences among these farming areas in the degree to which income varied from year to

year. For farms in both the winter and spring wheat areas, the income pattern was extremely irregular. There was less variability in the income of typical hog-beef fattening farms in the Corn Belt, and still less for central New York dairy farms. Even for the New

TABLE 2. VARIABILITY OF NET CASH FARM INCOME OF TYPICAL FAMILY-OPERATED FARMS IN FOUR TYPE-OF-FARMING AREAS, 1930-46 AS SHOWN BY (a) ANNUAL INDICES (ON THE BASIS 1930-46=100) AND (b) THE COEFFICIENT OF VARIATION¹

Year	Winter wheat farms (Southern Plains)	Spring wheat farms (Northern Plains)	Hog-beef fattening farms (Corn Belt)	Dairy farms (Central New York)
A. Index of net cash farm income (1930-46=100)				
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
1930	60	27	79	88
1931	29	5	40	57
1932	17	-9	22	35
1933	24	32	28	46
1934	42	20	32	47
1935	19	14	42	55
1936	38	20	80	65
1937	14	21	45	34
1938	17	28	47	51
1939	15	27	55	59
1940	17	44	55	69
1941	69	67	99	100
1942	138	153	146	120
1943	224	251	217	175
1944	217	282	206	203
1945	329	327	227	241
1946	430	392	279	253
B. Coefficient of Variation				
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
	126.1	129.4	82.5	72.8

¹ The data in this table are based upon net cash farm income as reported for these farming areas by the Bureau of Agricultural Economics in *Typical Family-Operated Farms, 1930-45, Adjustments, Costs and Returns, F. M. 55*, and *Farm Costs and Returns, 1945 and 1946, F. M. 68*.

York dairy farms, however, income fluctuated widely during the period. The influence of a gradual change in the general level of farm prices over this period is readily apparent in each income series. Historically, price fluctuations have contributed much to the variability of farm income.

It is important to emphasize that the illustrations of income variability in terms of "typical" farms that have been used throughout this discussion may understate considerably the actual extent of variability. The farm shown as "typical" of a farming

area represents, in most characteristics, an average of many different farms of the same general type. Crop yields estimated for a "typical" farm do not take into account the range of yields among farms in the area. Hence the year-to-year yield fluctuations for many individual farms would exceed those shown for a "typical" farm, and the income fluctuations due to yield consequently would be greater.

Variable Farm Income and the Federal Income Tax

The variability of farm income is important in two respects when considered in relation to the Federal income tax. First, the total tax over any period of years is somewhat greater for the taxpayer whose income fluctuates markedly from year to year than for the taxpayer whose income is relatively constant. This may be illustrated by comparing (a) the total tax over a five year period for a taxpayer with a wife and one dependent when his annual income varies greatly, with (b) the tax he would pay if his income were distributed equally over the period:

	<i>Income</i>	<i>Tax</i>
(a)	\$ 4,300	\$ 462
	1,200	0
	4,800	556
	2,700	179
	4,500	500
	<hr/>	<hr/>
	\$17,500	\$1,697
(b)	\$ 3,500	\$ 318
	3,500	318
	3,500	318
	3,500	318
	3,500	318
	<hr/>	<hr/>
	\$17,500	\$1,590

This discrepancy arises because additional increments of income in any one year are taxed at increasingly higher surtax rates. Also, a part of the exemption goes unused in any year that the taxpayer's income is smaller than the total exemption to which he is entitled. If we assume that persons with the same average income and with the same exemptions and deductions should pay the same total tax over a period of years, then the present tax is somewhat inequitable.

A more important consideration, particularly for farmers in areas where the natural hazards are great, lies in the failure of the tax to give adequate recognition to the fact that the unusually high income of one year must frequently be offset by unusually low in-

comes over a period of years. In this respect, part of the income in the peak production years might well be considered as a reserve against crop failure in other years.

Under the present income tax law, there are two methods by which taxable income may be adjusted from one year to another: (1) If a net operating loss is incurred in any tax year, the loss may be carried back or forward two years, and thus be used to claim a refund of taxes previously paid, or to reduce the tax in a future year. (2) By reporting farm income on a cash basis, taxable income can be adjusted by carrying over from one year to another those commodities that can be stored without undue cost. Each of these provisions, however, is effective in leveling out taxable income only over a rather short period.²

In considering how the Federal income tax might be revised so that it would take into account the variability of farm income, we may set forth the following goals: First, that the tax be equitable as among different classes of taxpayers. On this point the principal requirement is that the amount of tax over a period should not be greater on taxpayers with an irregular income. Secondly, the income tax should facilitate the accumulation of reserves of income against years of crop failure. In what follows, it will be suggested that the income tax be used as a positive measure to provide a stimulus to farmers for the carrying over of income from high to low income years.

Taxes must be viewed not merely as revenue measures but in terms of their incidence within an economic and social context. The effect of the income tax upon economic incentive and upon savings have long been pertinent considerations in the formulation of tax policy. Although there is a presumption against revisions which unduly complicate a general tax measure for the benefit of particular income groups, this should not rule out the use of the income tax to effect changes of general benefit.

² It is reported that one of the tax revisions under consideration by the House Ways and Means Committee is a proposal to abolish or reduce to one year the "carry-back" provision and to extend the "carry-forward" provision to five or seven years. (See the *Wall Street Journal*, March 2, 1948, p. 6.) As applied to farm income, a longer period would provide greater assurance that the tax would be adjusted for any loss that is incurred. Extending the "carry-forward" provision at the expense of the "carry-back" provision, however, might well have the effect of making the pattern of farm income still more irregular. Under the "carry-back" provision, the benefit is received in the form of a refund immediately following the year in which the loss occurs; but under the "carry-forward" provision the benefit materializes as a tax credit in some future year when income is at least large enough to be taxable.

A Suggested Income Tax Plan

The following proposal is one method by which the income tax might be amended for the benefit of those taxpayers whose incomes are subject to marked year-to-year variations.

It is suggested that the present income tax law be amended to permit any person who is required to file an individual income tax return to purchase tax saving certificates up to a certain proportion (let us say one-third) of his current taxable income, the sum thus invested to be tax-free until the certificates are redeemed at which time it would be taxed along with the income of that year. By investing in tax-free certificates in years when the tax liability is higher than average and redeeming them in years when the tax liability is below average, there would be sufficient tax saving at present surtax rates to make it profitable to carry over income from high income to low income years.

The possibilities of such a plan are illustrated in the following comparison of the tax liabilities that would be incurred under the present law with the liabilities under an amended law which would make it possible to hold one-third of taxable income tax-free in the form of saving certificates. The tax series have been computed by using the hypothetical income of typical winter wheat farmers over the period 1930-46, under the assumption of 1946 prices paid and received throughout the period (see Table 1), and by applying present income tax rates. The illustration is in terms of a typical farmer with a wife and two dependents. It is assumed that net farm income above \$3,500 would be invested in saving certificates, and that the certificates would be redeemed in an effort to keep the income from falling below \$2,500.

Given the historical yields and expense rates for this group of farms, with 1946 prices and present tax rates, it appears that large savings could be accumulated during a series of high yield years. Had a sum of \$4,400 been accumulated by 1933 (instead of only \$2,150 as shown in the illustration), farm income would not have fallen below \$2,500 during any year of the period.

The comparative tax liabilities, under the assumptions we have made, are indicated by the total amount of tax during the first 8 years, since at the end of the eighth year all accumulated tax saving certificates would have been redeemed. In this case, the tax saving would have been substantial: a total tax of \$1,266 for the 8 year period under the proposed plan compared with \$1,562 under

TABLE 3. HYPOTHETICAL NET INCOME, AND FEDERAL INCOME TAX LIABILITIES FOR TYPICAL WINTER WHEAT FARMERS IN THE SOUTHERN PLAINS, 1930-46
(1) AT PRESENT TAX RATES AND (2) UNDER A MODIFIED TAX PLAN

Year	(1) Assuming 1947 tax rates		(2) Assuming 1947 tax rates with tax-free savings permitted up to one-third of taxable income		
	Net income ¹	Tax liability ²	Net income (adjusted for tax-saving certificates purchased and redeemed) ¹	Accumulated tax-saving certificates (as of March 15 the following year) ³	Tax liability ²
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1930	4,868	461	4,118	750	325
1931	5,142	514	4,292	1,600	351
1932	4,141	325	3,591	2,150	231
1933	2,348	20	2,548	1,950	54
1934	3,357	197	3,357	1,950	197
1935	1,381	0	2,531	800	54
1936	2,476	45	2,526	750	54
1937	1,211	0	1,961	0	0
1938	2,249	3	2,249	0	3
1939	1,877	0	1,877	0	0
1940	1,784	0	1,784	0	0
1941	4,461	386	3,811	650	274
1942	6,325	762	5,075	1,900	500
1943	8,275	1,237	6,375	3,800	771
1944	7,665	1,086	5,965	5,500	686
1945	10,013	1,723	7,513	8,000	1,048
1946	10,818	1,965	8,068	10,750	1,186

¹ The income of each year has been adjusted to reflect 1946 prices received and prices paid. For the source of these data see Table 1.

² The tax has been computed for a farmer with a wife and two dependents. When net income was below \$5,000 the "short-form" tax table was used to compute the tax; above \$5,000, the standard \$500 deduction was taken.

³ Net income above \$3,500 is assumed to be used for the purchase of certificates, in units of \$50, up to the limit of one-third of taxable income. For example, in 1930 taxable income after deductions and exemptions was \$2,381 (not shown in table); hence \$750 of certificates would have been purchased that year.

the existing income tax law. This should provide a definite stimulus to the accumulation of saving certificates in years of above average income.

The introduction of such a tax plan would involve many administrative details, none of which, however, appears to offer serious difficulty. A series of tax-saving certificates could be issued for each tax year, and made available for purchase up to the final date for filing the income tax return. It would be necessary to make the tax-saving certificate nontransferable, but it could be made redeemable at any time upon the purchaser's request. It would also

seem reasonable to provide that the certificate, when redeemed, should be taxed under the same rate structure as that existing when the certificate was purchased, in order that future revisions of the rate structure should not penalize or benefit those who had accumulated certificates. Thus the income received from redeeming a certificate would be reported as an increment to the income of the current tax year,¹ but taxed separately under the rate schedule of the year of purchase.²

From the standpoint of the Federal Government, receipts from the sale of certificates could be considered in part as revenue, in lieu of postponed tax receipts, and in part as returns from the sale of short-term Government obligations. Certificates held for a year or longer, therefore, should be allowed to accumulate interest.

Although this plan has been proposed as a means of promoting greater income stability among farm people, there would seem to be no reason why it should not be available to all persons who pay individual income taxes. Its effectiveness as a stability measure, since this depends upon the willingness of taxpayers to take advantage of the tax-saving privilege, cannot be predicted in advance of its introduction. On *a priori* grounds alone, it would seem that considerable gain in stability could be realized at rather little cost.

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USING AGRICULTURAL CENSUS DATA IN A STUDY OF THE CHICKEN ENTERPRISE IN CENTRAL INDIANA*

A STUDY of the economics of production of chickens and eggs on central Indiana farms involves several types of analyses. First is an analytical description of the farming in the area, particularly the organization relationships among the poultry enterprise and other enterprises in the farming systems. This analysis will provide the basis for discovering characteristic groupings of farms with respect to size of operations, type of farming, and im-

¹ Changes in the surtax rate or in exemptions might make income tax reporting somewhat complicated for those who had redeemed certificates. But if the applicable tax rates were printed on each certificate, and separate space provided on the income tax return for reporting the tax on income from certificates, there should be little difficulty on this account.

* The author wishes to acknowledge the generous cooperation of the U. S. Bureau of the Census in making available unpublished census material and in offering helpful suggestions for its use.

portance of the poultry enterprise. Second is an analysis of the range in production practices farmers use in handling chickens and of the input-out ratios they obtain. For some purposes there may be no need to go beyond these two types of analyses. In the event, however, that there is interest in future trends of chicken and egg production in the area, a third type of analysis would be needed. For this, correlations between (1) the management and organization factors and (2) farm returns would be essential as the basis for projecting adjustments in production on characteristic groups of farms that would be profitable and that farmers would be likely to make in view of prospective economic conditions. Finally, the results of these projections should be interpreted in terms of the probable effects on the total production of chickens and eggs on all farms in the area.

The Census of Agriculture is an excellent source of data required for the first type of analysis. However, the need to examine in detail the organization of individual farms necessitates the use of basic working materials in the files of the Bureau of the Census. Adequate detailed information for individual farms is not provided in published reports.

Information of the kind needed for the second type of analysis is not available from the Census of Agriculture. The enumeration of farms for census purposes has not included the assembling of farm practice and input-output data in a comprehensive way. Lack of these data indirectly prevent the third type of analysis which depends upon results obtained in the analysis of the second kind.

If farm practice and input-output ratio information were available for individual farms from secondary sources, perhaps procedures could be worked out by which this material could be used in conjunction with data from the Census of Agriculture. But there are no suitable secondary sources for this information. It may be obtained only by special field studies.

In a field study designed to obtain management practices and input-output data for the chicken enterprise, the best alternative would seem to be that of focusing attention upon the relatively more important groups of farms in the area. Within each group of farms selected there would be an opportunity to concentrate the analysis on the modal cluster, if this procedure appeared desirable. The number of field records taken for each group of farms could be the same,

instead of being in proportion to the numerical importance of the group in the universe, on the assumption that the primary object of the field study would be to establish physical and economic relationships.

The following sections summarize an exploration of the use of data from the Census of Agriculture in devising a field study of chicken and egg production in central Indiana. Emphasis in the study would be upon production practices and input-output relationships. Information assembled would supplement farm-organization data available from the Census of Agriculture and other sources.

The Area and Types of Farms

The specific farming area involved is a belt of from 3 to 6 counties wide that extends from east to west across the center of the State of Indiana. Thirty-one counties are included. Its generalized type-of-farming designation is hogs and soft winter wheat. It includes State type-of-farming areas 5-a, 5-b, and 9.

TABLE 1. FREQUENCY DISTRIBUTION OF CENTRAL INDIANA FARMS,
CLASSIFIED BY TYPE OF FARMING¹

Type of farm	Number of farms	Percentage of farms
	<i>Number</i>	<i>Percent</i>
Unclassified	816	1.3
Fruit and nut	164	0.3
Vegetable	1,119	1.8
Horticultural specialty	248	0.4
Field crop	5,259	8.6
Dairy	4,244	7.0
Poultry	3,047	5.0
Livestock	26,514	43.6
Forest products	49	0.1
General	12,956	21.3
Family living	6,421	10.6
All farms	60,837	100.0

¹ *United States Census of Agriculture, 1945, v. 1, pt. 4, "State of Indiana."*

All types of farms are found in central Indiana. But livestock farms account for a much larger proportion of all farms than any other type. At the time of the 1945 Census 44 percent of the farms were classified as livestock compared with 21 percent classified as general, the next most common type (table 1).

Considerable variation may exist between the organization of individual farms that are grouped under a somewhat broadly defined type. The opportunity for differences is perhaps greatest

among farms classified as livestock farms. When 453 of the livestock farms¹ of central Indiana are sub-typed, approximately half of them are more adequately described as hog farms. Several other sub-types are represented by the remainder of the farms (table 2). These more restricted classifications of livestock farms were made by considering the value of products sold or traded on a more limited enterprise basis than was used by the Bureau of the Census, and by making some use of the actual numbers of different kinds of livestock handled.

TABLE 2. FREQUENCY DISTRIBUTION OF 453 CENTRAL INDIANA LIVESTOCK FARMS, CLASSIFIED BY SUB-TYPES¹

Sub-type of farm	Number of farms	Percentage of farms
	<i>Number</i>	<i>Percent</i>
Hog	237	52.3
General livestock	70	15.5
Hog-dairy	58	12.8
Hog-beef	45	9.9
Beef	16	3.5
Sheep	8	1.8
Other	19	4.2
All farms	453	100.0

¹ This group of 453 farms represents *all farms* typed as *livestock farms* falling *within* the segments that comprised the 1945 Master Sample of Agriculture in the 8 counties of Carroll, Delaware, Grant, Hamilton, Hancock, Henry, Howard, and Madison. Data for these 8 counties were used as a basis for most of the analyses presented in this paper because of the intent to restrict field work to these counties in order that information obtained could be compared with similar data assembled during an earlier year.

Size of Farm and Number of Chickens²

More than two-thirds of the farms of the 31 counties in central Indiana involved less than a quarter section of land each in 1944. Only 32 percent of the farms contained as many as 140 acres.

At the time of the 1945 Census 1 out of 8 of the central Indiana farms had no chickens. Flocks of 200 or more birds were few; they were reported for only 7 percent of the farms. Of the flocks of less than 200 birds, approximately one-third contained fewer than 50 birds and two-thirds fewer than 100 birds.

¹ Some farms classified as *general* would fall into some of the sub-types of livestock farms, if reclassified in the same way as the *livestock* farms.

² This section is based upon an analysis of 1945 Census data available for *all farms* falling *within* the segments that comprised the 1945 Master Sample of Agriculture for the 31 central Indiana counties. The statistics presented are subject to sampling variability. The sampling errors have been taken into account, however, in the interpretation of the data.

A slight tendency prevails for the number of chickens kept on farms in central Indiana to vary directly with the size of farm in total acres (table 3). This feature is associated with the relatively high proportion that noncommercial farms are of all farms in central Indiana. The broad category of noncommercial farms is made up of part-time and subsistence farms and rural residences, most of which involve small acreages. The magnitude of this problem is illustrated by the fact that nearly 3 out of every 10 farms in central Indiana had a value of products sold and traded in 1944 of no more than \$800. At 1944 farm prices, total sales of \$800 did not represent as large a volume of production as is usually associated with commercial farms. It is possible, of course, to measure the significance of noncommercial farms by other criteria. For present purposes, though, a determination on the basis of value of sales appears adequate.

TABLE 3. FREQUENCY DISTRIBUTION OF 3,490 FARMS¹ OF CENTRAL INDIANA, CLASSIFIED BY SIZE OF FLOCK AND SIZE OF FARM

Size of farm ²	Size of flock ³									All farms
	No chickens	Under 50	50-99	100-199	200-399	400-699	700-999	1,000-2,499	2,500 and over	
Under 70	237	560	313	225	42	4	1	1	1	1,384
70-139	101	231	275	301	56	6	0	0	0	770
140-219	58	126	193	219	54	7	1	2	0	660
220 and over	34	77	132	166	55	9	1	1	1	476
All farms	430	994	913	911	207	26	3	4	2	3,490

¹ Farms falling within the segments comprising the 1945 Master Sample of Agriculture for 31 central Indiana counties.

² Acres of all land in farm.

³ Chickens reported at time of 1945 census.

Comparison of Important Types of Farms

When comparing types and sub-types of farms in order to observe the significance and relative importance of the chicken enterprise, it is desirable to distinguish between commercial and non-commercial farms. Not to do so would result in the poultry and dairy type of farm groups containing more part-time farms, subsistence farms, and rural residences than the other type groups. Because so large a part of the total production of poultry and eggs comes from commercial farms, first consideration must be given to this class of farms in studying the economics of such production.

TABLE 4. SELECTED CHARACTERISTICS OF IMPORTANT TYPES AND SUB-TYPES OF COMMERCIAL FARMS IN CENTRAL INDIANA¹

Item	Type of farm							
	General	Field crop	Dairy	Poultry	General live-stock	Hog	Hog-dairy	Hog-beef
Number of farms ²	180	62	50	14	65	214	55	42
Size of farm, 1944								
Average acres	121	157	113	32	144	135	129	151
Range in acres	5-400	40-531	2-430	1-137	11-550	3-410	8-382	3-680
Cropland harvested, 1944								
Average acres	82	118	68	21	94	93	86	99
Range in acres	0-283	19-412	0-242	0-106	0-380	0-268	0-240	0-545
Chickens over 4 months (Jan. 1, '45)								
Average number	96	52	73	110	90	85	102	100
Range in number	0-400	0-250	0-300	0-200	0-425	0-1,501	0-930	0-450
Chickens raised in 1944								
Average number	283	142	151	510	234	175	166	162
Range in number	0-10,000	0-1,500	0-400	0-1,800	0-2,000	0-2,860	0-500	0-600
Value of poultry and poultry products sold and traded in 1944								
Average dollars	409	113	221	1,390	358	225	237	234
Range in dollars	0-7,500	0-1,200	0-950	140-5,910	0-2,400	0-1,327	0-971	0-1,500
Value of all products sold and traded in 1944								
Average dollars	3,900	3,479	3,021	1,831	4,288	4,800	4,749	7,170

¹ Farms are located in the 8 counties indicated in footnote of table 2.² Commercial farms of indicated type and sub-type of the 1945 Master Sample of Agriculture, excluding Specified Large Farms.

But production on noncommercial farms cannot be ignored, especially when there is interest in future production trends for an area. The remainder of this paper, however, deals only with commercial farms. Similar procedures would be followed for noncommercial farms.

The average number of chickens kept on important sub-types of commercial livestock farms tends to vary within a rather narrow range (table 4). General livestock, hog, hog-dairy, and hog-beef farms do not differ greatly in average size and in acreage of cropland harvested. The most noticeable difference occurs in the relationship between the value of poultry and poultry products sold and traded and the value of all products sold and traded. Chickens account for relatively more of the total value of all products sold and traded on general livestock farms than on the other three important sub-types.

General farms, although somewhat smaller in size and with less cropland harvested, have about the same number of chickens as have all livestock farms. Significantly larger numbers of chickens are raised, however, on the general farms. This is reflected in the fact that poultry and poultry products are relatively more important in the total value of all products sold and traded on general farms than on all livestock farms.

Field-crop farms, although they involve a larger acreage of total land and of harvested cropland per farm than other types of farms, have a much smaller chicken enterprise. The number of chickens on hand at the beginning of 1945 was about one-half of the number on general and all livestock farms.

Dairy and poultry type farms, particularly the poultry farms, involve on the average less total land and less harvested cropland than do other types of farms. They differ from each other, though, in the size of the chicken enterprise. More chickens are kept on the poultry farms. In fact, the size of flock is larger on poultry farms than on any of the other types of farms. The number of chickens kept on dairy farms, which averaged about 75 at the beginning of 1945, was about midway between the average number kept on field-crop farms and the average number kept on general farms and most livestock farms.

Selecting Classes of Farms for Study

Data assembled up to this point provide much information about the universe of farms, particularly commercial farms in central

TABLE 5. DISTRIBUTION OF COMMERCIAL FARMS OF IMPORTANT TYPES OF CENTRAL INDIANA, CLASSIFIED BY TYPE OF FARM, SIZE OF FLOCK, AND SIZE OF FARM¹

Type and size of farm in total acres	Number of chickens on hand January 1, 1945						All farms ²
	None	Under 50	50-99	100-199	200-399	400 and over	
General:							
Under 70	1	7	18	13	1	0	40
70-139	2	17	24	34	6	0	83
140-219	1	7	10	14	3	0	35
220 and over	3	1	6	7	4	1	22
Field crop:							
Under 70	3	3	0	1	1	0	8
70-139	5	10	8	1	0	0	24
140-219	2	6	5	2	1	0	16
220 and over	2	3	6	2	1	0	14
Dairy:							
Under 70	1	6	3	5	0	0	15
70-139	1	5	6	6	1	0	19
140-219	2	0	5	4	0	0	11
220 and over	1	0	3	0	1	0	5
Poultry:							
Under 70	2	0	2	4	3	0	11
70-139	0	0	3	0	0	0	3
140-219	0	0	0	0	0	0	0
220 and over	0	0	0	0	0	0	0
General livestock:							
Under 70	0	2	2	7	0	0	11
70-139	1	4	9	8	2	0	34
140-219	2	2	7	10	0	1	22
220 and over	0	0	7	1	0	0	8
Hog:							
Under 70	3	15	7	10	4	1	40
70-139	7	11	35	20	3	0	76
140-219	4	16	21	17	5	0	63
220 and over	4	5	11	11	4	0	35
Hog-dairy:							
Under 70	0	4	4	3	0	0	11
70-139	0	8	8	2	3	0	21
140-219	1	2	8	5	2	0	18
220 and over	0	0	3	0	1	1	5
Hog-beef:							
Under 70	1	2	4	3	0	0	10
70-139	1	1	5	3	1	0	11
140-219	0	5	4	3	4	0	16
220 and over	0	1	0	3	0	1	5
All farms	50	143	234	199	51	5	682

¹ Farms are located in the 8 counties indicated in the footnote of table 2.² All commercial farms of the 1945 Master Sample of Agriculture, *excluding Specified Large Farms*, that meet the indicated requirements.

Indiana. An understanding is gained of selected features wherein farms are similar and wherein they are distinctly different. A basis is provided by which farms may be placed in classes, each class possessing a considerable degree of homogeneity. From it a determination may be made regarding the specific classes of farms for which it is desirable to assemble, by field study, information about the chicken enterprise which is not available from other sources.

Classes of commercial farms useful in an appraisal of future trends in production of chickens and eggs in central Indiana and in the assembling of data on management practices and input-output relationships for the chicken enterprise may be delineated by the use of three factors. These three factors are (1) size of flock, (2) type of farm, and (3) size of farm. Farms would be divided into 6 strata by size of flock, each of these strata into 8 on the basis of type of farm. The 48 classes resulting would be stratified 4 ways by size of farm. A maximum of 192 classes of farms would be possible by this procedure (table 5). However, all classes are not of the same numerical importance. No farms at all are indicated for many of the possible classes.

Resources and alternative demands upon the time of research workers are usually such that economic analyses of individual farm enterprises must be held within limits that are short of those that would permit full study of every detail of the enterprises. Limitations on the scope of the analyses take the form of restrictions on the number of field records taken, when they are used, and of controls on the amounts of tabulating and summarizing performed in exploring and using the data that are assembled.

In practice, it would seldom be feasible to obtain field records for the 105 classes of farms shown in table 5 that would remain, if those classes for which no farms were indicated and those classes which involved no chickens were eliminated. An adequate number of field records for this number of farm classes certainly could be no less than a total of about 1,100. Some way would need to be found whereby fewer classes of farms would be involved. How many fewer classes would depend upon the number of field records that could be obtained and analyzed within the bounds set for the investigation. On the assumption that approximately 200 records might be the maximum that could be taken and analyzed, relatively few classes of farms could be covered adequately.

Additional classes of farms indicated in table 5 may be eliminated

from consideration, when deciding upon the farms to be surveyed, because of their minor significance in the universe. A class for which three farms, for instance, are indicated would be expected to account for but a relatively small number of farms in the universe of farms of central Indiana.

TABLE 6. DISTRIBUTION OF COMMERCIAL FARMS OF IMPORTANT TYPES IN CENTRAL INDIANA, CLASSIFIED BY TYPE OF FARM, SIZE OF FLOCK AND SIZE OF FARM WHEN CLASSES OF FARMS HAVING NO CHICKENS AND CLASSES WITH FEWER THAN 3 FARMS ARE EXCLUDED¹

Type and size of farm in total acres	Number of chickens on hand Jan. 1, 1945			
	Under 50	50-99	100-199	200-399
General:				
Under 70	7	18	13	
70-219	24	34	48	9
220 and over		6	7	4
Field crop:				
Under 70	3			
70-219	16	13	3	
220 and over	3	6		
Dairy:				
Under 70	6	3	5	
70-219	5	11	10	
220 and over		3		
Poultry:				
Under 70				
70-219			4	3
220 and over				
Livestock:				
Under 70	25	18	24	4
70-219	51	99	70	20
220 and over	7	23	16	5

¹ For location of farms see the footnote of table 2. For original classes of farms refer to table 5.

Analysis of the characteristics of sub-types of livestock farms indicated that considerable similarity exists between general livestock, hog, hog-dairy and hog-beef farms in size of farm and in number of chickens kept. Dispensing with sub-types of livestock farms would seem to be a course that could be followed in decreasing the number of farm classes without too great risk of lessening the reliability of statistical results that would be obtained. In a like manner the size-of-farm strata could be reduced from 4 to 3

by combining the two strata of 70-139 acres and 140-219 acres. This would give three size-of-farm strata that might be called small-medium- and large-size farms. Elimination and consolidation of classes of farms as outlined would give the 37 classes shown in table 6.

The problem of selecting classes of farms for field enumeration is reduced to more workable proportions by consolidating the number of classes to 37. However, about twice as many farm classes still remain as could be handled within the limits of approximately 200 field records. This difficulty may be overcome by deciding upon the kind of information that is most needed and fitting this to the pattern of farm classes. Approached in this way, 15 classes of farms would be selected for study. By obtaining field records on approximately 12 farms for each of the 15 classes (see table 7), comparisons would be possible of the management of the chicken enterprise of 4 different sizes on the same size (70-219 acres) of general and livestock farms. The records also would provide comparative data of the management of flocks of the same size (50-99 birds) on farms of the same size (70-219 acres) in each of the four type-

TABLE 7. CLASSES OF COMMERCIAL FARMS IN CENTRAL INDIANA THAT WOULD BE ENUMERATED IN A STUDY OF POULTRY MANAGEMENT PRACTICES AND OF INPUT-OUTPUT RELATIONSHIPS IN THE CHICKEN ENTERPRISE¹

Type of farm and size of farm in total acres	Number of chickens on hand Jan. 1, 1945			
	Under 50	50-99	100-199	200-399
General:				
Under 70			x	
70-219	x	x	x	x
220 and over			x	
Field crops:				
Under 70				
70-219		x		
220 and over				
Dairy:				
Under 70				
70-219		x	x	
220 and over				
Livestock:				
Under 70			x	
70-219	x	x	x	x
220 and over			x	

¹ Each "x" indicates a class of farms for which field records would be obtained.

of-farm strata; namely, general, field crop, dairy and livestock. Analysis could be made also of the management of flocks of the same size (100-199 birds) on farms of three sizes for both general and livestock types of farm. The management of large flocks (for this region) of 200-399 birds would be examined on general and livestock farms of 70-219 acres.

In addition to the 180 records obtained for the indicated 15 classes of farms, 20 records would be gotten for the two classes of general and livestock farms of 70-219 acres on which no chickens were kept. One half of the 20 records would be for general farms and one-half for livestock farms. The purpose of these records would be to gain an insight into the reasons for the absence of chickens in the organization of these two rather common classes of farms. Information obtained would differ from that assembled for farms having chickens, but would be helpful in the projection of future trends in production of chickens and eggs in central Indiana.

Objective methods of sampling would be used to select farms for enumeration in each of the 17 classes of farms to be included in the field study. Lists compiled for central Indiana could be used. Exploration of the opportunities of utilizing assessors' records in making up lists might show these records to be a good source of needed data.

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DEVELOPING A TECHNIQUE FOR DETERMINING TYPES OF FARMING*

THE procedure for determining types of farming presented in this article is based on a recently completed type-of-farming study for Georgia. Previous work on type-of-farming in this State has been of such a general nature that little detail of a basic nature was discovered. The current study was designed to bring out much of the detail heretofore overlooked.

The basis used in this study for determining types-of-farming is not entirely new. The application of the technique is new in that adjustments not previously used were applied in order to develop

* Based on unpublished research by the writer of a study of types of farming and trends by types of farming in Georgia.

a pattern which presented a realistic and useful picture of types of farming in Georgia.

Basis Used to Determine Type of Farming

Types of farming were determined on the general basis of the census values of farm produce sold or traded in 1939. However, one area was determined as non-commercial on the basis of the proportion of the total production which was used in the farm household.

Types of farming in Georgia as they existed in 1939 were determined on a county basis, each county then being designated by its type of farming classification. Counties of similar type classification were combined into types of farming areas. Tabulations were made by the type of farming areas which were made up of all counties of a similar type of farming classification.

Determining Types

The percents that the income from the various enterprises were of the total income were used as the basis of determining types of farming with the county boundaries being followed in delimiting the different areas. The type of farming of the county unit was determined without regard to the importance of any individual type of farming within it. Thus, type of farming for each county was based on the total production of all the farms within the county.

Method of Determining Types

The percents used in determining types of farming were arbitrarily arrived at after much experimenting with various percent combinations. Due to the tendency of Georgia farmers to produce on their own farms a high percentage of their farm home consumption items, it was found that the value of farm produce used in the farm home, on the farm where produced, must be eliminated in the commercial farming areas. To do otherwise led to the establishment of such a large number of types of farming that a very confused picture of the State's agriculture was presented.

The determination of type of farming involved two essential steps:

1. Determination of the percent that the value of farm products used in the farm household was of the total of the farm products sold, traded or exchanged and used in the farm household. Tabulations of these

percents for all counties of the State were made. When this percent was 50 percent, or more, the county was classified as non-commercial. Nine counties fell into this category.

2. For those counties other than the nine counties classified as non-commercial, further tabulations and calculations were made to determine the percent that receipts (farm products sold, exchanged or traded) from each of the various sources of income were of the total receipts. The source of income breakdown used was as follows:

- a. Livestock and livestock products

- (1) Livestock
- (2) Dairy products
- (3) Poultry and poultry products
- (4) Other livestock products

- b. Crops

- (1) Field crops
 - (a) Cotton
 - (b) Peanuts
 - (c) Tobacco
- (2) Vegetables
- (3) Fruits and nuts
- (4) Horticultural specialty

- c. Forest products

From the percent calculations of the relative importance of each of the above sources of income the type of farming for each of the remaining 150 counties in the State was determined.

Computations on the bases of the above two steps developed four categories into which all types could be readily classified. They were specialized types, combination types, mixed types, and non-commercial types. However, the technique which was followed varied from other published procedures in a number of details and the important adjustments are given to add clarity to the presentation.

Adjustments Used in the Study

The base data for this type of farming study were taken from the Agricultural Census as reported in County Table Table XVII, Volume II, part 2 of the 1940 Census of the United States.

Several adjustments were made in the census data. The first of these was applied after the non-commercial type of farming counties were determined. The census data gave the percent distribution of the value of farm products sold, traded, or used by farm households. For each county, other than the non-commercial type counties, a factor was determined which converted the percent distribution of products sold or traded to the basis of 100 percent. In

this manner the value of farm products used by the farm household was eliminated for all except the countries which were classified as non-commercial counties.

The census data gave no breakdown of the percent distribution of the value of individual field crops sold or traded. In order to secure a type of farming classification which shows the influence of important individual field crops in determining types of farming, certain calculations had to be made to breakdown the major field crop classification. Adjustments in the census data were made in the following manner:

Cotton

County Table XVI gave the value of cotton lint and cottonseed harvested. Normally, all cotton harvested is sold but all cottonseed are not sold. These census values were adjusted to allow for the value of cottonseed retained on the farm for seed and for feed during the following year. The remaining value of cotton and cottonseed was calculated as a percent of the total value of farm products sold or exchanged for each county. These percents gave a relative measure of the importance of cotton as a source of income in each county reporting cotton.

Tobacco

The value of tobacco harvested, reported in County Table XVI of Volume II, was accepted as the value of tobacco sold. For each county selling tobacco the percent that tobacco sale was of the total value of farm products sold or exchanged was calculated. These percents gave a measure of the relative importance of tobacco as a source of income in each county reporting tobacco.

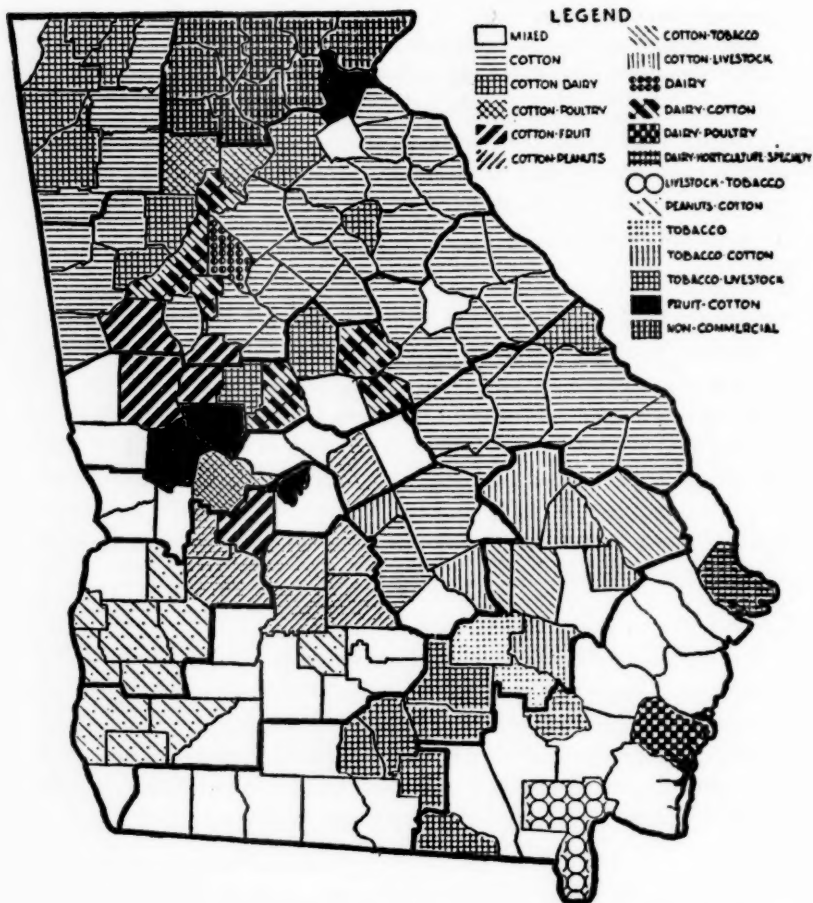
Peanuts

The census of 1940 gave no value of peanuts harvested or sold. However, since peanuts represent such an important source of income for a number of Georgia counties, the value of harvested peanuts was imputed, and this figure was used as the value of peanuts sold. This was done by applying the average price received by the Georgia farmer in 1939 to the 1939 production.

Types of Farming in Georgia

Two of the four categories of farm types previously referred to were broken down into their most important divisions. While the

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procedure used resulted in four categories, or main groupings of types of farming, it produced nineteen types of farming. The accompanying map shows the location of these types of farming.

Specialized types

When 60 percent, or more, of a county's agricultural gross income was from one source, the county was designated as specialized by the name of the enterprise producing this income. Specialized types determined by this method were:

Cotton
Dairy
Tobacco

Combination types

When 60 percent, or more, of the county's gross agricultural income was from two enterprises, each of which contributed at least 10 percent of the total, while neither contributed as much as 60 percent of the total, the type was indicated by the use of the names of the two enterprises. The type name states first the enterprise which is of greatest importance in this combination. The following combination types were determined:

Cotton-dairy
Cotton-poultry
Cotton-fruit
Cotton-peanuts
Cotton-tobacco
Cotton-livestock
Dairy-cotton
Dairy-poultry
Dairy-horticultural specialty
Livestock-tobacco
Peanuts-cotton
Tobacco-cotton
Tobacco-livestock
Fruit-cotton

Mixed type

When no two enterprises together contributed as much as 60 percent of the total income of a county, within the limits of the combination types, the county was designated as mixed type of farming.

Non-commercial

When a county's total receipts from the sale of farm products and the value of farm products exchanged was not equal to the value of the farm products consumed in the farm household of the producing farm, it was designated as non-commercial in type.

Procedure Used in other Type of Farming Studies

Type of farming studies in the United States have differentiated areas largely on the basis of enterprise income or on the basis of enterprise labor requirements.

Foster F. Elliott in his *Types of Farming in the United States*, used 40 percent or more of the total value of all products of the farm as the basis of determining in which of the several type of farming groupings the farm was placed. However, Elliott found it necessary to use certain adjustments in order to clarify a number of classifications. For instance, Animal Specialty farms were separated from "stockranch" farms on the basis of the ratio of the pastureland to the cropland.

Selmer A. Engene and George A. Pond in their *Agricultural Production and Types of Farming in Minnesota*, used 40 percent or more of the value of all products from the sale of a product, or group of products, as the basis of determining type of farming. These authors likewise made such adjustments as appeared necessary to clarify certain type classification. For example, they made a "part-time" type, which applied to those farms where 130 days or more were spent on work away from the farm and with total value of all farm products \$750 or less. Another variation from their basic procedure was to classify as "self-sufficing" those farms where 50 percent or more of the value of all products was represented by the value of the farm products used in the home.

E. B. Hill, in his study *Types of Farming in Michigan* followed the same basis in outlining the different type-of-farming areas as was used by Elliott. However, Hill presented a more detailed picture with types more closely related to specific enterprises in contrast to the generalized grouping of enterprises by Elliott.

R. S. Beck used the proportion of time spent on the various enterprises to determine types of farms in his *Types of Farming in New York*. Productive-man-work units, calculated for each town in the State, was the basis of calculation. He used a number of adjustments in order to clarify a number of classifications. For example, "specialized types" were determined when 75 percent or more of the productive farm work in a town was spent on one predetermined class of enterprises. "Combination types" were established when 50 percent of the productive work in a town was spent on two enterprises, but neither accounted for less than 10 percent of the total-productive-man work units.

Appraisal of the Study

The primary objective of any type of farming study should be to present an accurate picture of farming systems in the various parts

of the area covered. To whatever extent this study meets that objective then to that extent it is justified. The application of the technique used, including the variations from heretofore recognized procedures present a picture which appears to be realistic. The recognition of the variations between the agricultural areas should be one of the important factors in developing or implementing regional farm planning programs. This study has attempted to define more definitely these agricultural areas of important variation in Georgia and to present a technique which may be used in states with agriculture comparable to Georgia's.

A recognized weakness for some purposes is the use of the county unit basis because of the large size of the county. The use of minor civil divisions would have, no doubt, presented a more detailed and probably for many purposes a more useful picture of the State's agriculture.

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A DEVICE FOR ANALYZING YIELDS

SHORT CUT TO YIELD-CURVE PROBLEMS¹

FARM management workers have long needed means for reaching approximate answers to problems that can be precisely solved only through complex mathematical computations. Usually the reasonably well-measured factors are fewer than the unmeasured factors. The arbitrary allowances, necessary to any answer in such cases, render every such answer unsatisfactory. Drawing free-hand curves through observations plotted on coordinate scales lacks much of giving satisfactory solutions to the "power" curves and the "exponential" curves that "fit" data before us. Each worker can rationalize his own curves, but seldom likes the product better than another's.

In the early Twenties, W. J. Spillman developed a basis for using exponential equations with special reference to their application to fertilizer experimentation. Before his death in 1931 he reduced to arithmetic his process of solving complex economic problems including determining the amount of nitrogen, phosphoric acid, and potash available for plants in soils of "check plots," the best pro-

¹ This note attempts to clarify some phases of the development of the yield curve $Y = M - AR^x$ set forth in Technical Bulletin 348 of the U.S.D.A. published in April 1933, entitled *Use of the Exponential Yield Curve in Fertilizer Experiments*, by W. J. Spillman. See also this writer's further comments in this *Journal*, July, 1933.

portions of the principal ingredients of fertilizers,¹ and the most profitable quantities of fertilizers to apply under specified cost and returns relationships. Though he then presented this as a device for handling fertilizer problems, Spillman pointed out the application of his method to any set of circumstances in which the results obtained were definitely attributable to the quantity of a measurable growth-stimulating factor applied. In early work the applications to growth of chickens and to feed requirements of fattening livestock were demonstrated. Very few sets of data are appropriately arranged for use of Spillman's detailed computations. The principles he demonstrated are adaptable to some phases of reported observations.

This note opens up for farm management workers a field of interest long avoided because of the difficulty of the "arithmetic." Data usually available in reports of observations are sufficient for useful approximations, through basic relationships briefed as follows.

The Short Cut Method Exemplified

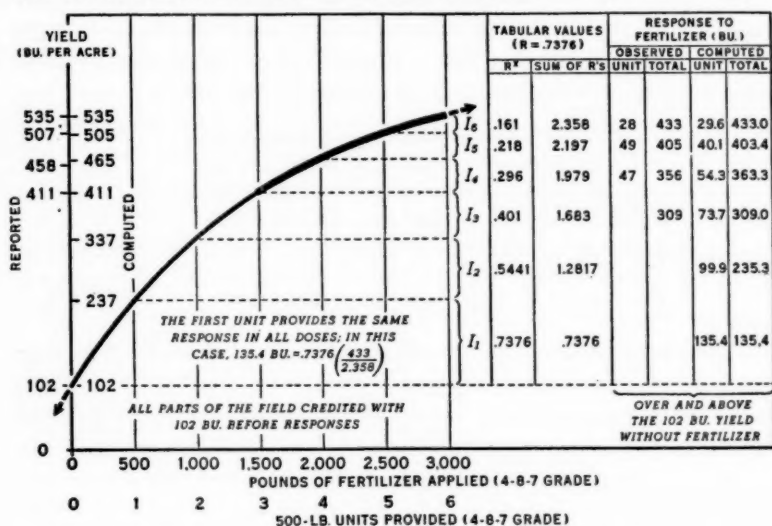
There is a "yield curve" appropriate to every authentic observed production record for which the observer attributes growth, or yield increase, to the application of stated numbers of units of a recognized growth-stimulating factor. Usually experiments provide for observing the yields resulting from several applications of the growth-stimulating factor under observation, each application differing from the others only in the number of units of the growth-stimulating factor applied, compared with yields from untreated plots otherwise handled the same as the treated plots.²

It has long been recognized that applications of a growth-stimulating factor differing only in number of units of the factor result in yields that increase in total as the number of units applied increase, but that the additional yields attributable to the successive units applied one by one are smaller and smaller.

Arrayed in order of number of units of the growth factor applied, each of the *additional* yields is normally smaller than that attributed to the unit before it, by a definite percentage. The "principle of

² To simplify the presentation, this discussion from here on uses the results of one of the experiments with fertilizer on potatoes at Aroostook Farm, Maine, in 1936, as reported in Bulletin 414, Maine Agricultural Experiment Station. Hence, the "growth-stimulating factor" is 4-8-7 fertilizer applied in doses differing by 500 pounds—the unit of application—from 1,500 pounds to 3,000 pounds.

PARTS, POINTS, AND PRINCIPLES USED IN COMPUTING A YIELD CURVE



U. S. DEPARTMENT OF AGRICULTURE

NEG. 46619 BUREAU OF AGRICULTURAL ECONOMICS

FIG. 1.—Diagram of the "Short-cut" method for analyzing yields. For this diagram, the value of R (0.7376) was computed the long way, providing greater precision than is usually needed. The "sum of R 's" ($R^1 + R^2 + R^3 + R^4 + R^5 + R^6$, etc.) for 3 units in this case is 1.683, for 6 units 2.358. The core of the "short cut" method is the acceptance of the observed total yield, 433 bushels, as the sum of six increments in yield represented by the successive values of R and totalling 2.358, where R is .7376 as shown. The same results are obtained by putting 309 bushels as the sum of three increments. The computed yield responses to four units and to five units of fertilizer differ slightly from the observed yields, (7 bushels above and 2 bushels below respectively) for reasons not stated. Any point on an accepted curve can be used with similar confidence in the reliability of the result indicated. See table 1 for typical results when the trial values of R are too high or too low. The experimental results reported are those for 1936 taken from Bulletin 414 Maine Agricultural Experiment Station, table 6.

decreasing increments" is thus recognizable in repeated experiments.

Examine figure 1 on which all factors of any like problem are represented. The experimental observations relate to the fertilizer applications to the five plots immediately involved and the yields of potatoes harvested from the corresponding plot. That is, the experimenters included in their pattern, besides the check plots that averaged 102 bushels per acre, four plots in the same field, presumably no more fertile than the check plots, on which 4-8-7 fertilizer was applied in quantities of 1,500 pounds, 2,000 pounds, 2,500 pounds and 3,000 pounds, the yields for which were respec-

tively 411, 458, 507, and 535 bushels of potatoes. Subtracting the yield of the check plots (102 bushels) from each plot we get as the *increase* in yield attributable to fertilizer (as the distinguishable difference in the experimental treatment of the plots):—

309 bushels from three	500-lb. units
356 bushels from four	500-lb. units
405 bushels from five	500-lb. units
433 bushels from six	500-lb. units
A fourth unit added to 3 units gave 47 bushels, (356—309)	
A fifth unit added to 4 units gave 49 bushels, (405—356)	
A sixth unit added to 5 units gave 28 bushels, (433—405)	

These three observed increments in yield do not stand to each other in the definite percentage relation stipulated by the hypothesis. In particular the increment from the fifth unit appeared to give more potatoes than the fourth had given. Consider, however, that the average increment attributable to the first three units was 103 bushels compared with 41 bushels from the second three units.

Note also that 1,500 pounds (3 units) having induced a yield found to be 309 bushels above the check plots, an additional 1,500 pounds (another 3 units) induced only 124 bushels more. The last 3 units added only 40 percent as much to the yield as did the first three.

Thus we may properly question the accuracy of the field observations. The tentative conclusion is that as a measure of response to this fertilizer the yield of the plot that got 4 units was a little low, and the yield from the plot that got 5 units was a little too high. A fifth unit of fertilizer cannot add more to the yield than the fourth, as was here observed. This categorical denial of the "accuracy" of the yields reported for those two plots does not necessarily mean that the observers erred in measuring area, in weighing fertilizer, or in weighing the product. It does mean that because all other factors cannot in practice be thoroughly controlled, or their individual effects measured simultaneously, the fertilizer applications were perhaps not wholly responsible for departures noted in the observed results.

It seems helpful to start analysis with a firm core of reality against which to check departures from expectations. The "firm core of reality" is a smooth curve that satisfies the logical stipulations of the problem, which are (1) that the fertilizer applications are uniform in content and vary only in the quantity applied; (2)

that the fertilizer application is the only measurable factor distinguishing the treatments of the experimental plots, and (3) that fertilizer is actually a growth-stimulating factor. Empirical analyses led to the development of the general formula for this smooth curve, of which that in figure 1 is an approximation, applicable to the reported observations. That is, the curve is not calculated to fit observations that clearly reflect inequalities in other factors that also influence yields. Variable factors other than fertilizer may be covered in the computations if suitably provided for in the experimental design.

This smooth curve is described by a series of values such that the ratio between the increments in the products of successive additional uniform units of the growth factor is constant. In figure 1 the ratio accepted as meeting the conditions there displayed is 0.7376, the R of computations of this kind. The value of R is necessarily a decimal fraction. Its size depends upon the number of units into which a given quantity of the growth factor used is divided for purposes of analysis.³

In the process of computation it turned out that when R had the value 0.7376 the first unit (500 lbs.) of fertilizer provided 135.4 bushels of potatoes. The second unit gave 0.7376 as many bushels, or 99.9 bushels. The third unit added slightly under 74 bushels so that adding 135.4, 99.9 and 73.7 gives the "309" bushels as the combined yield attributable to three units, or the 411 bushels reported for the plot, of which 102 bushels were attributable to the plant nutrients available without the fertilizer. As the numbers of the increments increase the size of successive increments decreases (the I 's of Figure 1). Thus the proportional value of the increment from the sixth unit is $R^5 = (.7376)^5 = 0.161$, which has the value 29.6 bushels for this series, as indicated on figure 1.

The sum of the separate responses to each of the successive additional units of fertilizer applied is 433 bushels. The sum of the successive values R, R^2, R^3 —to R^6 (R starting with .7376) is 2.358 which represents the total response to fertilizer in this case, or 433 bushels. Division provides 183.63, the quantity that stands for 1.0 in reaching the number of bushels assigned to the successive unit applications of fertilizer. Thus the response to the first unit is $433 \div 2.358 \times .7376$ or 135.4 bushels. The response to the 6th unit

³ As noted above two 1,500-pound units give a value of 0.40 for R ; 30 100-pound units give a value of 0.941 for R , but the computed results for the actually observed points still come out 411, 465, 505, and 535 as shown.

is $183.63 \times .161$ or 29.6 to the nearest tenth of a bushel. This identification of the "sum of R 's" (each the first ratio raised to a successively higher power) with the total increase of yield attributed to the indicated number of units of the growth stimulating factor constitutes the "short cut method." The method applies to any combination of observations that seems most logically to reflect the principle, under the conditions of the experiment. Only persons close to the field test can suggest *why* any observation is above or below a curve based on data that conform to the principle of decreasing increments. (Note that the computed yield for the plot that received 4 units is 7 bushels more than was reported, and that for the plot that received 5 units is 2 bushels *less* than was reported. Neither of these points need be used in finding the constants of the curve.) In such fashion the reported yields in other cases may be tested.

It is much easier to use a table of values for successive values of R and the associated accumulated sums of the successive values of R than it is to compute the value by direct methods. A few trials will usually fix the appropriate value of R and the "Sum of R 's." Six or eight units make a better set-up for this kind of approximation than either fewer or more. If the number of units representing the total application of fertilizer for the largest yield reported is put at 2 or 3, the value of R is a small decimal that is not serviceable in this kind of work. If the number of units is arbitrarily made large, the value of R is a high decimal that changes value relatively slowly, and is not serviceable for the rough approximations of this short cut.

Table 1 shows results typical of the testing process when one must find a value of R from data provided, and has no special reason for confidence in one observation as against another. When R was tried at .70 all the other readings than the tentative point were considerably off the curve. Similarly, .75 was too far off to satisfy. Use of .74 (not shown) gave about as good results as did the tediously computed .7376.

As users gain confidence in their computations, they will accept readings for any point on the curve that satisfies the facts of the pertinent observations. In the case discussed (figure 1) there is strong probability that a seventh 500-lb unit would have returned 22 bushels of potatoes in 1936 and that an eighth unit would have added 16 bushels. Total yields exceeding 573 bushels per acre in

TABLE 1. EXAMPLE OF ESTIMATES OF RESPONSES TO LARGER AND LARGER DOSES OF FERTILIZER FOR POTATOES, USING THE SHORT CUT METHOD*

Application, pounds	None	1,500	2,000	2,500	3,000
Units applied (500 pounds 4-8-7)	0	3	4	5	6
Reported yield, bushels per acre	102	411	458	507	535
Yield attributed to fertilizer, bushels		309	356	405	433
Tabular value of "sum of R 's," when R is 0.70		1.533	1.773	1.941	2.059
Responses estimated from					
309 and 1.573		309	357	391	414
356 and 1.773		308	356	390	414
405 and 1.941		319	369	405	429
433 and 2.059		322	373	408	433
Tabular value of "sum of R 's," when R is 0.75		1.734	2.051	2.289	2.466
Responses estimated from					
309 and 1.734		309	366	408	440
356 and 2.051		300	356	397	427
405 and 2.289		307	364	405	436
433 and 2.466		305	361	402	433
Tabular value of "sum of R 's," when R is 0.7376		1.683	1.979	2.197	2.358
Responses estimated from					
309 and 1.683		309	363	403	433
356 and 1.979		303	356	395	424
405 and 2.197		310	365	405	434
433 and 2.358		309	363	403	433

* The short-cut method asserts that selection of an appropriate ratio between responses to additional unit applications of fertilizer will provide close estimates of the responses to any application of fertilizer reasonable to the conditions, by equating one of the responses to the sum of R 's carried to the power indicated by the number of units of fertilizer used to get that response. Several trials may be needed. In any event the averaging of observations is to be avoided. Rounding of numbers also interferes with precise figuring. See figure 1 for definitions.

Maine are far from rare. Presumably the highest yields have been obtained from land rated higher than 102 bushels without fertilizer, and perhaps without so much fertilizer as 4,000 pounds (760 pounds of plant nutrients). In 1936 the question would have been "Will 22 bushels of potatoes be worth \$10.00 for fertilizer and \$3.30 for extra handling?"⁴ Farmers now are much more concerned about the possibility of financial loss that attends the spreading of the equivalent of real money on the field than they are about a possible but nebulous toxic quantity. Perhaps adequate analytical demon-

⁴ In 1936 the 90-cent price more than covered the estimated 60-cent additional cost. At 1937 potato prices (30 cents a bushel) few growers would have come out even on much lower total expenses per acre.

strations would confirm the soundness of the fertilizer practices of the more successful growers (*more* fertilizer rather than less and liberal quantities *every* year.) This testing process has been made relatively easy. Every new situation must be tested as there is no standard single curve to serve it.

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COMMENT ON "HOW EFFICIENT IS AMERICAN AGRICULTURE?"

THE problem of production inefficiency in farming in the United States in a long-run setting is discussed by Theodore W. Schultz in the August 1947 issue of the *JOURNAL OF FARM ECONOMICS*.¹ Professor Schultz, using mainly prewar statistics, concludes that the agriculture of the United States in the aggregate and in the long run is grossly inefficient in its use of production resources. However, the discussion herein which follows suggests, in view of wartime and postwar developments in farming efficiency, that the prewar situation described by Professor Schultz is not necessarily a valid indication of the long-run level of agricultural efficiency that is likely to be experienced in the postwar period.

Professor Schultz takes as his bench mark of long-run efficiency primarily the aggregate farm-efficiency situation that existed in the United States just before the war. Most of his data relate to 1939. It is well-known that marked improvement in aggregate farming efficiency has taken place since 1939. The question arises, Does 1939 or does some later year, say 1946 or 1947, provide a more accurate indication of the prospective long-run level of over-all agricultural efficiency?

Professor Schultz bases his appraisal of long-run efficiency on four types of evidence. The first type has to do with regional differences in output per farm worker in the United States. The data introduced on this point (pp. 648-650) reaffirm the well-known fact that there are marked disparities in output per farm worker as between the major geographic regions. Without doubt mass aggregate long-run inefficiency exists in certain regions when these regions are viewed in a context devoid of allowance for differences in institutional, educational, and social structure. This is a

¹ Theodore W. Schultz, "How Efficient is American Agriculture?", this *JOURNAL* 89: 644-658, August, 1947.

basic indication of inefficiency, but it does not demonstrate the extent to which American agriculture in the aggregate is inefficient as compared with the rest of the American economy. The fact is that disparities in the production efficiency of nonfarm industries follow approximately the same regional pattern as do disparities in farm industries.²

The second type of evidence compares output per farm worker and income per farm employee with similar items in nonfarm industries. Professor Schultz reasons that farming was less efficient than nonfarm industries before World War II because a net transfer of labor from farming occurred during the period of wartime prices favorable to increased agricultural production. However, he does not carry this reasoning to the point of examining the corollary that farming has become more efficient in its use of labor resources in the wartime process. The fact is that three farm people can now produce more farm products than four could produce just before the war. A considerable return of farm people to the land has occurred since the war but in no sense has this been a "back-to-the-land movement."³

The marked degree to which aggregate functional efficiency in farming in the United States has gained on that in other industries since 1939 is shown by the following data on output per worker, based on estimates of "national income originating" and "full-time equivalent employment" made by the Bureau of Foreign and Domestic Commerce:⁴

² Schultz, already cited, p. 652.

³ In January 1947, the farm population was 2.4 million above that of January 1945, the wartime low, but was still 2.7 million under the 1940 level. U. S. Dept. Agr., *The Agricultural Situation*, September, 1947, p. 1.

⁴ "National income originating" is more nearly a net concept of value added by each industry than is "value added by manufacture" as used in the Census of Manufactures. "National income originating" also is more directly comparable as between industries than "value added by manufacture" and "value added by the agricultural production process," which were used in the sources from which Professor Schultz selected his data. One reason for greater comparability of "national income originating" is that differences in rates of consumption of capital goods (plant, equipment, etc.) as between industries are accounted for in the computation.

The quotient of "national income originating" divided by the number of "full-time equivalent employees," which is used in the accompanying table, is not a completely accurate measure of the average national income originating per man-year of full-time work because of the exclusion, in computation of "full-time equivalent employees," of data on unpaid family workers. This results in some overstatement of the "national income originating" per "full-time employee," much more so for the farming industry than for other industries.

"Full-time employees" as computed by the Bureau of Domestic Commerce for the farming industry is a more accurate representation of the total manpower used

Year	National income originating* per full-time equivalent employee†			
	On farms	In manufacture	In all industries	On farms as percentage of all industries
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Percent</i>
1929	880	2,084	1,912	46
1934	398	1,293	1,188	34
1939	742	1,777	1,571	47
1944	2,058	3,477	2,836	73
1945	2,278	3,388	2,914	78
1946	2,494	3,256	3,112	80

* "National income originating" in an industry is the sum of factor costs incurred by the industry in production. In the business sector of the economy, it is equal to the excess of the market value of the industry's product and the subsidies it receives over the sum of the following costs: purchases of goods and services from other enterprises, indirect business tax and nontax liability, business transfer payments, and capital consumption charges.

† The number of full-time equivalent employees in an industry is computed as the man-years of full-time employment by persons working for wages or salaries and its equivalent in work performed by part-time workers, plus the number of active proprietors of unincorporated enterprises devoting the major portion of their time to the business. This number falls short of total man-years of full-time employment equivalent because of the exclusion from the data of unpaid family workers.

Computed from U. S. Bur. of Foreign & Domestic Commerce, *National Income Supplement to Survey of Current Business*, July, 1947, pp. 26 and 40.

As additional evidence, Professor Schultz compares the wage and salary incomes on farms with those in nonfarm establishments. These comparisons (page 652) overstate considerably the actual disparity that existed in 1939 because (1) the incomes shown are cash incomes,⁴ exclusive of the value of food, housing, fuel and other noncash items;⁵ and (2) the incomes shown are medians for the category of male workers who worked 12 months,⁶ for which category the disparity is greater than that for all workers.⁶ Also,

annually in farming than is "man-equivalent" as computed by Ducoff and Hagood, the source selected by Professor Schultz. Ducoff and Hagood's concept is one of something less than a full-time man equivalent, specifically, "the labor time input and work capacity of the average farm operator who is under 65 years of age and does not work off the farm in excess of 100 days per year."

⁴ The value of noncash income items received by farm employees in the United States in 1939 has been estimated by the Bureau of Agricultural Economics to have aggregated about one-fourth of the amount of the total cash income received. (Ducoff, Louis J. *Wages of Agricultural Labor in the United States*, U. S. Dept. Agr. Tech. Bull. 895, pp. 92-93, 1945.)

⁶ The disparity between the median wage and salary incomes of all farm and all nonfarm laborers in the United States in 1939 was considerably less than the disparity between the median wage and salary incomes of the groups of farm and nonfarm workers who worked 12 months in 1939. (Ducoff, already cited, p. 95.)

marked changes in the comparative income status of farm laborers have occurred since 1939. The extent of this change is suggested by the fact that the average annual wage and salary earnings per full-time equivalent employee in farming rose 212 percent from 1939 to 1946, compared with a rise of 84 percent per full-time equivalent employee in manufacturing. However, the absolute increase per employee was more in manufacturing than in farming.⁷

The third type of evidence used by Professor Schultz consists of comparisons of prewar productivity per worker in American and foreign agriculture. The significance of these comparisons in the present context is doubtful because of changes in relative productivity of American and foreign workers that undoubtedly have taken place since the data were compiled.

The fourth type of evidence consists of fragmentary data on the marginal productivity of capital and labor resources employed in farming. These data also are drawn from a short period of prewar experience.

Professor Schultz indicates that his data are for purposes only of identifying the broad outlines of the over-all problem of farming inefficiency in the United States. It is doubtful whether even the broad outlines of this problem can be identified adequately without giving some attention to changes through time in the degree of aggregate long-run inefficiency. Attention must be given especially to the possibility that at least some of the marked wartime and early postwar gains in the over-all efficiency of farming may be retained in the later postwar period. As further study proceeds, attention might well be given also to identifying more clearly disparities in farming efficiency as viewed from points of observation other than those of national and regional aggregates. Significant items of observation would include disparities nationally and regionally according to type of farming, size of farm,⁸ and physiographic charac-

⁷ The average annual wage and salary earnings per full-time equivalent employee in the United States are reported by the Bureau of Foreign and Domestic Commerce as follows:

	1939	1946	Increase
Farm	\$ 378	\$1,181	\$ 803
Manufacture	1,363	2,512	1,149

Compiled from *National Income Supplement to Survey of Current Business*, July, 1947, p. 38.

⁸ An identification of inefficient farms in the United States from the viewpoint of size of farm in terms of value of products is contained in Samuel Liss, "Farm Habilitation Perspectives." *This JOURNAL*, pp. 735-740. August, 1947.

teristics of the farm land resources.⁹

It would appear that farming in the United States in the aggregate, as of the current moment, can be described as only moderately inefficient in comparison with nonfarm industries. Maintaining and extending the current level of farming efficiency in a long-run period is a major goal of agricultural policy, not only for itself but as a means of attaining abundant production of farm products, conservation of agricultural resources, and a parity of living for farm people. Only as time passes will it be possible to judge with historical accuracy whether 1939 or some later period was the more accurate bench mark from which to appraise the long-run level of production efficiency in the American agriculture of the postwar period.

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⁹ Considerable progress has been made in identifying local farming areas characterized by low productivity and low income per farm. Economic land-classification studies in New York, for example, have revealed a close association within type-of-farming regions between low productivity of farm land per acre and low production of products per farm.

BOOK REVIEWS

Trends in Output and Employment, George J. Stigler, New York: National Bureau of Economic Research, 1947. Pp. ix, 67. \$1.00.

This volume, by Professor Stigler of Columbia University, is the fourth in the 25th Anniversary Series of the National Bureau of Economic Research. It summarizes and interprets some of the findings of the Bureau's studies of output and employment, which cover, in terms of the Bureau's national income estimates, about two-fifths of the total economic activity of the United States and about nine-tenths of the output of the commodity-producing industries. The discussion is focussed on three broad questions: "1. How has the magnitude and composition of output—the end product of economic activity—varied over time? 2. How has labor—the most important of our scarce resources—changed in amount, composition, and distribution? 3. What changes have taken place over time in the efficiency with which labor is utilized?" Each question is the subject of a brief chapter, and the book is concluded by some observations on the implications of the output and employment studies for the theory of economic development. It is unnecessary to attempt any summary statement in this review, as the author provides one at the outset and the entire essay totals less than sixty pages.

The value of this study will depend largely on the interest of the reader. It will be most useful to those who, for one reason or another wish to obtain a general view of the field. Users of productivity statistics will be grateful for the various summary tables in the text and for the long-time series on output, employment and employment per unit of output in manufacturing, agriculture, mining, electric light and power, gas and steam railroads, which are presented in the appendix tables. Persons engaged in constructing productivity statistics, and related measurements, will find suggestive discussions of a number of important problems, including the measurement of quality changes, the shift of production from the household to the market, and the measurement of changes in productive efficiency.

However, the book contains a number of analyses and observations which can stand critical comment. Stigler's attempt (p. 20) to reconcile the behavior of his non-durable goods series relative to his index of total commodity output with the behavior of analogous

series constructed by W. H. Shaw is unsatisfactory. His attempt (pp. 26-31) to associate rapid growth of an industry with a wide dispersion of trends in its component industries is interesting, but not, I think, conclusive. The analysis of changes in efficiency (pp. 49-53), is suggestive, but publication of more of the basic data supporting table 14 would have been helpful.

Economists interested in the broader implications of the productivity trends will turn naturally to the concluding observations, which link the statistical findings with the theory of economic development. I find these observations generally disappointing and several of them debatable. For example, Stigler concludes that "the steady growth of aggregate output has been due in part to the rise of new industries, and not merely (as we might intuitively expect) to a canceling of increasing and decreasing rates of growth." (p. 55) I see no reason why we should not "intuitively" reach the first conclusion. The hypothesis that the rapid growth of the service industries may reverse the trend toward our becoming a nation of wage earners and eventually make us a nation of shopkeepers is unconvincing. One may argue equally well that the service industries will tend to develop on a large scale, with increasing numbers of wage earners.

I fully appreciate the fact that Professor Stigler's effort required much careful and laborious work. Anyone who has attempted to construct indexes of large economic aggregates will understand how much is involved in producing even a few simple figures, such as the physical output series presented in table 2. However, for some reason or other he chose not to exploit his data to the extent which some of his extremely searching analyses on other subjects might have led one to expect. As a result, little new has been added; and the analyst struggling with the knottier problems in the output and productivity field will find, after reading this book, that his ability to unravel those problems has not been appreciably advanced.

J. P. CAVIN

Bureau of Agricultural Economics

Agricultural Market Control Under Federal Statutes, George L. Mehren, Berkeley: California Agricultural Experiment Station, 1947. Pp. 48, Mimeo.

This paper presents a general history of the development of market controls under Federal Statutes, a short summary of the

content of present statutes and a concise appraisal of possibilities and limitations of the powers set forth in the statutes. Market control is defined as the manipulation of one or more factors affecting price.

In the first section (13 pages) there is set forth a background of the 1933 statutes and various proposed amendments thereto including a discussion of the reasons these amendments were proposed and objections to them, the 1935 amendments and the 1935 act.

It is noted that the original act contained very broad powers with little by way of standards largely because of a lack of understanding of the types of situation to which the provisions could be applied. Enforcement difficulties appeared involving due process, delegation of powers and uncertainties regarding the definition of Interstate Commerce.

Remedial changes introduced in the 1935 statute are outlined, and, following an adverse decision regarding processing taxes, the 1935 act provided that the market control sections of the 1933 act were separable from the production control sections. Supplementary and related programs are outlined, as are the various attempts to extend market control authority to all commodities.

In the second section (12 pages) there is presented a description of the 1937 act as amended. In this section the specific authority under agreements and orders for milk and its products and for "other enumerated commodities" is set forth in some detail with the major distinctions between the provisions applicable to the two groups being noted. There is also a review of the statutory provisions regarding administrative standards and enforcement provisions.

The possibilities, limitations and place of control are stated in the third section (21 pages).

Consideration is given to techniques for control and the author concludes that such techniques may be resolved into some sort of quantity manipulation. Discussion is then centered on five problems to the solution of which controls have usually been directed—namely, the short-run or seasonal surplus, the long-run surplus, inter-related demands, trade practices and market communications. In each of these cases the problem is set forth, the applicability of the act noted and the effects discussed.

The author then includes a series of recommendations of the statute and a summary.

In total, the article, in addition to presenting a review of the history and development of market controls under Federal statutes presents a concise analysis of the possibilities, limitations and applicability of the powers to specific marketing problems. The recommendations as to changes in the statute are of interest, particularly those relating to standards on the basis of which applicability of the act would be determined.

A criticism of the article is that the analysis was so little concerned with the provisions relating to milk and its products.

E. W. GAUMNITZ

National Cheese Institute, Inc.

Agricultural Price Policy, Geoffrey S. Shepherd, Ames. The Iowa State College Press, 1947. Pp. vii, 440. \$4.50.

In this volume Professor Shepherd adds about 120 pages to a substantial rearrangement of the material in his *Agricultural Price Control* and comes out with a much better organized work on agricultural price control and policy. The book is now divided into three main sections. The first, consisting of twelve chapters, describes and analyzes experience with agricultural price controls during the last two decades; the second, of five chapters, describes the current situation and discusses prospects; and the last, of thirteen chapters, presents Shepherd's outline of the main goals of agricultural price policy and discusses a set of programs which, in his opinion, will achieve them. Attention is invited to the original review of all but eight chapters of this material by Professor Wellman in the November 1945 issue of this *Journal*.

Shepherd's description and analysis of past agricultural price control experience in the first section are still the best general introduction to this subject that is available. The second section, describing the current situation and immediate prospects is, of course, substantially dated. Except for four chapters on stabilizing incomes against supply variations and one on food distribution programs, the third section consists of new material. The present review will be confined to this section.

Shepherd develops a basis for his positive recommendations by criticizing the functioning of open market prices in agriculture on three counts: (1) they are erratic guides to production, (2) they are highly variable, and (3) they (along with incomes) normally are low. Given these conditions and the implications flowing from

them, he proposes five concurrent programs designed to attain the five goals of desirable price policy for agriculture. These goals include: (1) rational allocation of resources, (2) stabilization of aggregate incomes against the effects of supply variations, (3) stabilizing individual farmers' incomes, (4) stabilizing incomes against demand changes, and (5) developing and maintaining comparable incomes for equal ability between agriculture and the rest of the economy over the long run.

The separate programs are developed with little reference to what will be politically feasible at any particular time and with implicit faith in the ability of economists to produce accurate answers and forecasts under the heavy burden of responsibility which the programs place upon them. The analysis runs in terms of what is possible "on paper." While reference is made to administrative difficulties likely to arise in the various programs their potential significance or influence is not adequately emphasized.

A program of forward prices is the sole recommendation to achieve the goal of rational allocation of resources. This general topic seems somewhat incompletely covered in the failure to set forth the criteria of a "rational allocation of resources" as well as the processes by which one will know, in practice, when this has been achieved. It remains to be demonstrated that the consequences of such a program will be a solution of the resource allocation problem in agriculture. The separate quantitative importance of price uncertainty on farm production is still to be determined.

The supply stabilization programs from *Control* based on either fixed or variable price floors depending on product are carried over substantially intact to the present volume.

Variations in individual farmers' incomes resulting from crop yield variations would be stabilized by a crop insurance program. Premiums or indemnities would be based not on the deviation of actual from moving average yield but rather from a moving average yield adjusted for the percent that the national crop is above or below its moving average. This, together with variable loan rates based on elasticity of demand of one would tend to stabilize acre returns to an extent depending mainly on the percentage of average yield insured.

The failure to have discussed demand changes, which are the most important source of aggregate income variation, as a setting for the other programs may tend to result in some overvaluation of

their effectiveness. Demand changes would be legislated against in terms of food distribution programs. Such programs, however, could probably not be expected to stabilize satisfactorily farm incomes against demand changes. Further measures recommended and discussed include those making compensatory payments per unit of product sold and payments allocated on a net sale basis. In view of their shortcomings, Shepherd advances a third alternative based on excess taxes (processing or income) in boom times to be repaid during depressions. Its practical acceptability, however, seems a matter of considerable doubt.

In order to bring up agricultural incomes to equality with incomes for equal ability in other lines over the long run, expanded educational and employment service programs are recommended. Few could quarrel with these proposals.

Shepherd's approach to the agricultural price and income problem is one of implicit faith in the efficacy of governmental intervention and control. While considerable merit attaches to such an approach when proper safeguards are erected, the method has been in considerable part one of attacking the symptoms rather than eliminating causes. Failure to consider also methods of improving on the competitive system for more socially efficient operation tends to give a somewhat biased picture of the possibilities. The author's smooth style of writing adds to the attractiveness of *Agricultural Price Policy* as a text.

HARLOW W. HALVORSON

University of Wisconsin

Family Farm Policy, edited by Joseph Ackerman and Marshall Harris, Chicago: University of Chicago Press, 1947. Pp. xxii, 518. \$4.00.

Ackerman and Harris have edited the proceedings of an international conference on "The Family Farm in United States Land Policy" at the University of Chicago in February, 1946. The purpose of the conference was brought out by delegate Robert W. Hudgens who stated, "We are told that the objective of the conference is not to outline recommendations for specific action, for we are assembled as a forum. We are not here for policy formulation but rather for the discussion of ideas basic to the establishment of sound tenure policy. It must be recognized, however, that too often we have action without study and study without action. Our task

is to bridge this gap." The wealth of information, ideas, and opinions which have been placed in this single volume attests the accomplishments of the conference.

The first 385 pages build the framework for the real meat of the conference—the five committee reports on various phases of the tenure problem. Ackerman and Harris perform a real service in the interpretive summary (Chap. I) by placing the family farm and land tenure policy in their proper economic, social, and political prospective relative to the national economy. The second chapter describes (theoretically, graphically, and statistically) the farm tenure system in the United States, past and present.

A panel discussion on "The Place of the Family Farm in United States Land Policy" uncovered a wide range of weaknesses in present family farms, tenure policy, and tenancy arrangements. Government policy on rural economic stability, education, and health also received a revealing scrutiny. The reader appreciates that the family farm must, indeed, have many sound features to have survived, even in a weakened condition, so many generations while being subjected to the diverse and cancerous weaknesses mentioned by the panel.

Chapters IV through XIV are devoted to papers by delegates from Canada, England, New Zealand, Netherlands, Sweden, Denmark, Brazil, Puerto Rico, Czechoslovakia, Germany, and France. These papers give interesting accounts of land tenure problems and the attempts to solve them in the several countries. The information is largely narrative in form although some statistical data are presented. J. F. Booth, Canadian delegate, illustrated the necessity for flexibility in a land policy to meet new developments in agriculture. Perhaps not all the adjustments in the size of family farms can be foreseen accurately today, especially in view of the difficulty of forecasting our future population and production trends. We must avoid making the changes in our land policy so inflexible as to inhibit the adjustments necessary to meet future changes in the relative costs of the various factors of production.

Committee I reported on "The Place of the Family Farm in Our Land Tenure System." The committee defines a family farm in terms of the following characteristics:

1. "The entrepreneurial functions vested in the farm family.
2. The human effort required to operate the farm provided by the farm family with the addition of such supplementary labor as may be

- necessary, either for seasonal peak loads or during the developmental and transitional stages in the family itself. (The amount of such regular outside labor should not provide a total labor force in excess of that to be found in the family of 'normal' size in the community.)
3. A farm large enough, in terms of land, capital, modern technology, and other resources, to employ the labor resources of the farm family efficiently."

This is not a final definition. The committee recognized that it is weak in sections 2 and 3.

The committee offers some subjective standards by which the institution of family farms may be appraised and with which tenure policy may be planned.

Committee II reported on "The Place of Ownership and Tenancy in a Tenure System Based on Family Farms." From the report one concludes that it is not so much the use but rather the abuse of the institutions of land ownership and tenancy which encourages the development of the various weaknesses. Improvements are recommended in the administration of both ownership and tenancy; improvement not to some Utopian level but to levels already accomplished under some economic conditions for owners, and under some leases for tenants. A realistic approach to the general problem!

The third committee reported on "Measures to Improve Tenure Conditions on Farmily Farms." A rather comprehensive recapitulation of measures deemed necessary to improve tenure conditions on family farms is presented.

Committee IV suggested some sound objectives for further consideration and "Action to Improve the Conditions of Farm Laborers and Sharecroppers." Some of the suggestions seem rather idealistic, and a few are incompatible with present goals in agricultural progress. Unless our fear of agricultural "surpluses" is conclusively a figment of past "dark ages," are we being realistic to advocate the development of new farms from large landholdings? Furthermore, is it rational to suggest the reclamation of high-cost (or high-subsidy) land at a time when economy of production is being emphasized? Granted that both ideas would help some laborers become operators, but a sharp line of demarcation should be maintained between action taken in the name of charity and that taken in the name of true agricultural progress. The development of land which would lead to low-cost production would, of course, fall in the latter category.

The fifth committee reported on the "Responsibility of Govern-

ment in Tenure Improvements." A summary of historical developments in tenure policy was followed by an outline of problems of tenure policy and methods which government may use in their solution. Students of land tenure will find this section very useful. The strong, clear statement of the responsibility of various governmental units in improving tenure conditions will serve as a guide in future work. The parts that federal, state, and local units should play in tenure legislation have been as sharply delineated as past judicial decisions will allow.

Henry C. Taylor, in the final chapter, offers at once a challenge and a word of caution to those who will lend their efforts towards the improvement of public policy on land tenure. He portrays the family farm as a means to the end of a richer, fuller rural economy functioning in greater harmony with the national economy.

"Family Farm Policy" should be part of the reference library of the student of agricultural economics, especially in the field of tenure, tenancy, land economics, and public policy.

C. V. PLATH

Purdue University

Financial Needs of the Devastated Countries—Interim Report. Occasional Paper No. 1 Department of Economic Affairs, United Nations, Lake Success, New York, 1947. Pp. 50 \$0.50.

This report is the first of a series of papers to be published by the Department of Economic Affairs of the United Nations. Material for the manuscript was presented to the fourth session of the Council in February 1947, and was published in July 1947. Continued study is underway of the changing needs of the devastated countries, and later publications in this area are contemplated.

Although the rapidly changing economic and political situations in Europe during the past 12 months have rendered obsolete much of the material in this report, the publication still constitutes useful reading for students interested in the details of the European recovery program.

After carefully reviewing the probable import requirements of the devastated countries, and appraising the capacity of these countries to pay for such imports, the report concludes, "It is evident that the existing means at the disposal of the countries under review will be insufficient to finance their planned import programs for 1947. . . . It is clear that until action is taken by

private organizations, governments, or international agencies to augment the loanable resources now known to exist, the import programs of the governments cannot be financed in full."

Even though some of the statistics in the report may be obsolete, the conclusion quoted in the preceding paragraph was never truer than today.

EARL L. BUTZ

Purdue University

Survey of Current Inflationary and Deflationary Tendencies. Paper No. 2, Department of Economic Affairs, United Nations, Lake Success, New York, 1947. Pp. 86. \$0.50.

This report is the second in a series to be published by the Department of Economic Affairs of the United Nations at Lake Success, New York. It was published in November 1947.

The report is divided into three parts. The first part treats with the problem of full employment in the United States, and seems to infer that deflation in the United States is imminent and inevitable. The second part deals with scarcities and inflationary pressures in devastated Europe, including the United Kingdom, France, Italy, Poland and Yugoslavia. The third part deals with inflation in underdeveloped countries, including India and Latin America.

The 16 pages devoted to the problem of full employment in the United States develops nothing new to any student of Agricultural Economics in the United States. It is based chiefly on statistics from the *Mid-year Economic Report of the President*, and releases from the Department of Commerce.

Parts two and three will constitute useful reading for American economists. Part two, treating with the problem in devastated European countries, discusses the roles of a comprehensive system of controls and rationing, monetary reform, taxation reform, and stimulation of production as means of counteracting the inflationary forces. These subjects are handled well, with ample statistical documentation.

Part three, dealing with the inflationary problem in underdeveloped countries, indicates that the inflationary problem arose largely because of an increase in government expenditure which was not financed by taxation, and also from a large increase in exports (particularly in Latin America) which was not balanced by an increase in imports. Although the underdeveloped countries did not

experience any general reduction in productive capacity, such as occurred in devastated Europe, the inflationary pressure was nevertheless strong because the supply, especially of agricultural goods, was relatively inelastic in response to the increased demand. A third factor at work in Latin America has been the high and even increasing level of exports after the war as a result of full employment in the United States, the demands of devastated countries supported by relief grants and foreign loans, and the low rate of recovery of alternative sources of supply.

American readers will do well to follow the publications of the Department of Economic Affairs of the United Nations, both from the standpoint of narrative interpretation and statistical documentation of problems and developments abroad.

EARL L. BUTZ

Purdue University

The Structure of Transcontinental Railroad Rates. Stuart Daggett and John P. Carter, Berkeley: University of California Press, 1947. Pp. VIII, 165.

Any teacher or research worker in marketing, industrial location or trade theory knows that aside from a few highly-abstract and not always useful models, the general theory of transportation costs is untouched. Price theory rarely is modified to include the effects of space or time upon location of production, upon concentrations of consumer purchasing power or the marketing functions necessitated by their separation. Failure to develop a general theory of transport cost may be largely attributable to absence of empirical analysis. The authors of this book have made one of the first major contributions in providing descriptive data out of which analysis may emerge. Their main objective is to describe the railroad rate system which in a large measure governs the economic relations of the Pacific Coast to other regions. This descriptive work is envisaged as groundwork for a larger study of the effects of the rate structure upon the western economy. It rests mainly on 1943-44 published tariffs covering a sufficient segment of all rates to permit adducing general descriptive conclusions.

The physical characteristics of western rail territory are the first determinants of rates considered by the authors. Rails—which handle some three-fourths of California interregional trade—cover long distances over difficult terrain. There is careful comparison of the

distances to selected destinations by rail, air, water and highway. Two mountain ranges and other less important divides lie between California and the east. Costs of overcoming elevation are analyzed in terms of capital costs, effects of curvature, the need for increased power and the effects of descents. Ruling grades are described and analyzed for all main routes. The practices of re-tonnaging at terminals and the costs associated therewith are described. Analysis of regional traffic loads dissipates the prevailing misconceptions with respect to traffic density. This is, to my knowledge at least, the best short description of the effects of distance and topography on California rail rates.

The actual mechanics of rate-making and the influence of the carriers, of the Interstate Commerce Commission and intrastate bodies are described in detail. The major rate-territories are set out and both class and commodity rates are described. Subdivisions of these two types of rates are compared, methods of calculation are shown and regional comparisons are made. Car-lot, 1cl and any-quantity ratings are considered for most types of rates. The effects of distance upon different types of rates in different regions are analyzed. The dominance of commodity rates in the west and their cost differential with respect to class rates are set out. The difficulties of commodity descriptions, the long-versus-short haul and the aggregate-of-intermediaries are assessed by reference to specific examples.

Western termini are designated, the extent and form of rate groups and the kind and amount of changes in rates from western termini to eastern destinations are shown. Terminal-rate cities are indicated and the area of terminal cities with transcontinental rates is mapped. Points of origin on major commodities exported from California are shown. A similar analysis of terminal rates on west bound traffic is made.

Rate groups on both eastbound and westbound traffic are clearly described. The history of rate territories and tariff bureaus is set out. Techniques for combination of through and local rates and consolidation of rates are treated. Rate structures on major California products from main points of origin are shown. Westbound rates are analyzed in detail for dry goods, beverages, steel, auto bodies, clothing, vehicles, canned goods, wine and fertilizer. Rate profiles on Class C traffic eastbound at various points on alternative routes are set out. Specific descriptions are provided for lettuce,

fresh grapes, citrus, sugar, canned goods, dried fruits and vegetables and wine.

A basis for future analyses of regional competition is laid in comparison of average rates per ton-mile for various classes or commodities in different areas. The needs of western shippers for low rates on short-hauls appears to be satisfied in present rate structures. California seems to be disadvantaged on middle-distance hauls, which is especially important with respect to Pacific Northwest Markets. Eastbound rates on manufactured goods appear somewhat higher than on westbound traffic. East-west breaking points of rate-equivalence are located west of the geographic center. Per-mile commodity rates on transcontinental shipments from California are generally low and, especially in farm products, aid western shippers to penetrate eastern markets.

This is not an analysis of the effects of rail rates upon the western economy. It is, however, the essential data without which such analysis is impossible. Rate-making is complex, publication is not clear to laymen and the effects of different kinds of class or commodity quotations are not fully known. Differences in rates are equivalent to differences in the degree of space or time separation of consumers from shipping points. The effects of rate-manipulation upon profitability of business enterprise and competition between commodities, regions and scales or methods of production are obvious. This book lays the ground work for analysis of the specific effects of rates upon the western economy. It fills a long-recognized need for such data and points up the lack of such data for other regions.

GEORGE L. MEHREN

University of California

Gloucestershire: A Physical, Social and Economic Survey and Plan,
Gordon E. Payne, Gloucestershire: County Council and Joint
Planning Committees, 1947. Pp. 320, 47 maps. \$5.50.

At first glance this large and handsome volume appears to be merely an elaborate handbook of information useful to municipal and county administrators and planners working in Gloucestershire. The conventional chapter headings: history; growth of development; geology; land drainage; topography; landscape; population and so on through 24 topics, support, indeed strengthen, the

original impression. It is only after considerable reading that one begins to sense that this is the report of no ordinary survey but the result of a minute examination of the physical, social and economic properties of the county of Gloucestershire and a summary of their relation to each other and to the goal of a prosperous and livable (Does one dare say happy?) society.

Behind the prosaic headings lie an almost unbelievable wealth in detailed conclusions relating to almost every aspect of county affairs from land drainage to air-port location and from sewer arrangements to plans for the preservation of historic houses and scenic spots. Most remarkable of all, it is a truly comprehensive cross-indexing of ideas. History is not only in the introductory chapter but is used where needed to clarify problems of, say, land use, industrial location, or housing patterns. Geology crops up in the chapters on water supply, housing and highways.

It soon becomes clear that there really must have been 2,000 people helping on this study, a fact stated in the *Acknowledgements* but likely to be passed over until the reader begins to ponder on the quantity and variety of data necessary to suggest and support the number and complexity of ideas presented here. The entire report, with the exception of the introductory chapters and a few introductory paragraphs scattered here and there, is one of conclusions and not a presentation of data.

The final synthesis of ideas is presented in the form of a *plan*. The conclusions and recommendations which constitute the *plan* are entirely understandable apart from the bulk of the report and are certain to become the best known part of the study though they are set off from the report proper by a note printed in red ink which says: "The following recommendations and conclusions are those of the Author personally. They do not necessarily represent the views of the County Council or the Joint Planning Committees."

The conclusions are both comprehensive and specific. Areas suitable for reserves, forests, crops, industry, housing, etc. are specified. Elaborate codes are devised for controlling the location and type of all building from churches to petrol stations and from heavy industry to public lavatories.

American readers may find some of the recommendations rather presumptuous. For example, the first recommendation under the heading geology reads: "All building should be constructed of local materials or where this is impossible, the finish should harmonize

with the color of the sub-soil." There are a number of places where the *plan* may seem to Americans, and no doubt to some Englishmen, to severely limit the freedom to choose any but the planned alternative. Such an arrangement surely violates the essential meaning of the words free choice. On the other hand the report makes startlingly clear the necessity to have some sort of planning if public welfare is at all important.

While this is certainly the most detailed survey ever made of Gloucestershire a formidable list of earlier studies could be made. Most of these were not easily available for comparison, but fortunately the Richard T. Ely collection (now in the Hill Memorial Library, Louisiana State University) contains the survey of Gloucestershire made by George Turner of Dowdeswell in 1794 for the Board of Agriculture and Internal Improvements.¹ This early report covers many of the topics discussed in the recent survey and interestingly reaches many of the same conclusions. As regards subject-matter headings the earlier report is no less comprehensive. Sparrows, ale houses, wages, marl, soap's waste, tithes, glue maker's refuse, fences, Chandler's shops and needed inventions are some of the topics included.

The fundamental difference between the old and the new report (the difference in detail is obvious) is that the earlier work was meant to stimulate discussion while the newer was certainly prepared as a definite guide for action. Everything about the current report indicates that the author and the research staff felt that the work would be a major guide for future operations in the county, private as well as governmental. The strong possibility that even the details of a plan will be put into use is a remarkable stimulant to socio-economic research. It will be interesting to see what type of planning reports come out of England if the Socialists succeed in holding power for a number of years. Judging by this effort, and there is no reason to believe that it was inspired particularly by the party in power, a very good beginning has been made toward comprehensive area plans.

Something should be said about the method used in this study of the county of Gloucestershire. This aspect will particularly interest agricultural economists as they well remember the long

¹ George Turner, of Dowdeswell, "General View of the Agriculture of the County of Gloucestershire, with Observations on its Means of Improvement," Board of Agriculture and Internal Improvement, 1794.

and largely unprofitable debates of a few years ago on how to study an area or make an *area analysis* as it was called. This discussion as carried on by agricultural economists led to the question of how to show the relation between physical, social and economic facts. And where local planning was involved, how to show these relationships on maps which everyone could understand without much effort or any special knowledge. About this time the problem of how to develop and use physical and economic classifications, particularly land classifications also became an issue. Many sought to make economic land classifications which would serve all or at least general purposes.

The magic map and classification sought must have been something like that Campanella envisioned as covering the wall of one of the colonnades of the *City of the Sun* the utopia he described in 1637. This map it will be recalled showed the relation between all physical and social facts, being made up of samples of the products of Nature spaced attractively and in such a fashion as to show their relation to man. Apparently it has always been the desire of planners to show everything on a map! That there is no such map or device, came as a blow, a crushing blow, to quite a few agricultural economists about the time of the conference in Missouri on land classification in 1940. It was a discovery which apparently knocked the props from under the supporters of economic land classifications. At least not much has been heard since about this type of study.

The Gloucestershire study would, if widely circulated, do a lot to lift the morale of those who are interested in promoting area studies. Here maps have been used as maps best can to show one or two things at a time and classifications have been made for definite reasons by definite standards and never for *general purposes*. The synthesis is never in the form of a map or a classification but always in the form of decisions, conclusions, and recommendations.

No particular contribution to the development of the *economic map* is made by the Gloucestershire survey. The maps are all quite conventional. The excellent printing of the color plates is welcome. Economists have yet to work out a satisfactory method for presenting physio-economic data in graphic form. Francis Marschner, USDA, has done some constructive speculating on the kind of maps economists need, but there has been a general lack of effort directed to this important subject.

The inevitable personal element in *conclusions and recommendations* (the synthesis) of area studies will always bring up the question of responsibility for the judgements. In the Gloucestershire study of 1794 the Board of Agriculture and Internal Improvements felt the necessity to insert the following paragraph:

It is hardly necessary to add, that the Board does not consider itself responsible for any fact or observation contained in this Report, which at present, is printed and circulated, for the purpose merely of procuring further information respecting the husbandry of this district, and of enabling every one to contribute his mite to the improvement of the country.

We have noted above the hedge used in introducing *conclusions and recommendations* in the present-day study. Further changes will have to take place in English as well as American thinking before citizens' boards are willing to become their neighbors' thinkers, lest they also become their neighbors' keepers. Naturally the thoroughgoing collectivist will not wince under either responsibility.

A final word should be said for the literary style of this report. Reading it gives something of the feeling created by Gilbert White's *Natural History of Selborne*. English place names as, Forest of Dean, Vale of Bicknor, heath of this and that stir in American readers all sorts of childhood memories gathered from European fairy stories, no doubt.

ROBERT W. HARRISON

Bureau of Agricultural Economics

Postwar Problems of Migration. New York: Milbank Memorial Fund. 1947. Pp. 173. \$1.00.

The steady increase in the population of the earth with periodic hunger and famine in certain areas contributes to a continuing interest in the problem of human adjustment to land and other natural resources. This volume will be read with interest and profit by all who concern themselves with problems of man-land adjustment.

The report consists of eleven papers presented at a Round Table on Postwar Problems of Migration which was sponsored by the Milbank Memorial Fund in October, 1946. Lowell J. Reed served as Chairman of the Round Table. The papers and their authors are as follows: "Migration and the Population Potential of Monsoon Asia," Irene B. Taeuber; "Future Migration into Latin America," Kingsley Davis; "European Migrations: Prewar Trends and Fu-

ture Prospects," Dudley Kirk; "Possibilities and Limits of International Control of Migration," Carter Goodrich; "The Present Status of our Immigration Laws and Policies," E. P. Hutchinson; "The Demographic and Economic Implications of Larger Immigration," Warren S. Thompson; "Recent Refugee Immigration from Europe," Maurice R. Davie; "Recent Trends of Rural-Urban Migration in the United States," Conrad Taeuber; "Wartime Shifts of the Civilian Population," Henry S. Shryock, Jr.; "Special Problems of Negro Migration during the War," Ira De. A. Reid, "Projection of Urban Growth and Migration to Cities in the United States," Philip M. Hauser and Hope T. Eldridge.

Special interest attaches to the papers by Irene Taeuber, dealing with Asia, and that of Kingsley Davis, on Latin America, in view of the fact that the one is an area of population pressure and the other one where possible relief might be expected.

The billion people of Monsoon Asia might adapt to the land base by industrialization and urbanization as Japan has done, but Dr. Taeuber sees difficulties in the political disorder of the area and in the urgent need for some immediate decline in fertility if disaster is to be forestalled. Industrialization may be too slow.

Prospects of migration to Latin America are limited by the "choosiness" of the nations as to desirable immigrants. They want the workers from countries of Europe which can ill afford to lose them.

LOWRY NELSON

University of Minnesota

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- Ackerman, Jr., and Harris, M., "Family Farm Policy," Chicago: University of Chicago Press, 1947. Pp. xxii, 518. \$4.00.
- Board of Governors of the Federal Reserve System, "The Federal Reserve System" Second Edition, Washington: National Publishing Co., 1947. Pp. 125
- Conference on Research in Income and Wealth, "Studies in Income and Wealth," Volume Ten, New York: National Bureau of Economic Research. Pp. 340. \$4.50.
- Economics Principles Commission of the National Association of Manufacturers, "The American Individual Enterprise System," Vol. 1 and 2, 1946. Pp. 1119. \$10.00.
- Mannon, Leo. E., "Land, Men and Credit," New York: Island Press, 1947. Pp. 67. \$1.00.
- Mund Vernon, A., "Open Markets," New York: Harper and Brothers, 1948. Pp. xi, 272. \$3.00.
- Ray, Parimalkumar, "Agricultural Economics of Bengal," Part 1, Calcutta: University of Calcutta, 1947. Pp. 235. 12s.
- Renne, Roland R., "Land Economics," New York: Harper and Brothers, 1947. Pp. xiv. 736. \$5.00.
- Salter, Leonard, "Land Economics," Minneapolis: University of Minnesota Press, 1948. Pp. 258. \$4.00.
- Shepherd, Geoffrey S., "Agricultural Price Policy," Ames: Iowa State College Press. Pp. 440. \$4.50.
- Waring, P. A., and Golden, C. S., "Soil and Steel," New York: Harper and Brothers, 1947. Pp. x, 240. \$3.00.
- Weindling, Ludwig, "Long Vegetable Fibers," New York: Columbia University Press, 1947. Pp. viii, 300. \$5.00.

NEWS NOTES

Guy Black, after completing his graduate program at the University of Chicago, has been appointed to the staff of the Giannini Foundation of Agricultural Economics at the University of California.

C. F. Bortfeld has been appointed Assistant Agricultural Economist of the North Dakota Agricultural Experiment Station and will undertake research in farm management, in addition to his teaching. He also represents the Experiment Station on the Regional Farm Management Research Committee of the North Central States which was recently established under the auspices of the Farm Foundation in Chicago.

William Bredo, formerly associated with the University of New Hampshire, has accepted an appointment as cooperative agent with the Division of Marketing and Transportation Research of the Bureau of Agricultural Economics. Mr. Bredo will also serve as Secretary of the New England Research Council.

C. F. Burkhead, Head of the Division of Field Crop Statistics, and J. A. Ewing will be in charge of a survey on nonrespondents to certain Bureau of Agricultural Economics schedules. The survey will be conducted by the personal interview method and will be carried on in three states—North Carolina, Kansas and Indiana.

H. C. M. Case is again back as Head of the Department of Agricultural Economics, University of Illinois, after serving as consultant to the Senate Subcommittee on Long-range Agricultural Policy.

Frederick E. Cole has resigned as Commissioner of Agriculture in Massachusetts and has accepted a position as Extension Professor in the Marketing of Fruits and Vegetables at the University of Massachusetts.

Ocie Coston has transferred to the Bureau of Agricultural Economics from the Production and Marketing Administration.

Louis J. Ducoff has returned to active duty in charge of the farm labor work in the Bureau of Agricultural Economics, following a year's academic leave on a Social Science Research Council Fellowship at American University.

J. Norman Efferson, Agricultural Economist, has been granted a leave of absence for six months from Louisiana State University to make a study of the rice industry in the Asiatic countries for the Office of Foreign Agricultural Relations, United States Department of Agriculture.

Gerald Engelman, who has been a research assistant at the University of Minnesota, has been placed on a joint appointment between the Minnesota Agricultural Experiment Station and the Bureau of Agricultural Economics to continue work on the regional livestock marketing project.

Robert A. Fitzpatrick has been appointed Assistant Professor of Research in Marketing at the University of Massachusetts.

Trygve Haavelmo, Research Associate of the Cowles Commission, and of Agricultural Economics at the University of Chicago has been made Professor of Economics at the University of Oslo, Oslo, Norway.

Robert G. Haley joined the staff of the Department of Agricultural Economics, University of Illinois, on January 1.

Clarence A. Hustrulid, Farm Management Fieldman at South Dakota the past two years, has accepted a position as instructor in the Veteran's Institution on the Farm Training Program at Brookings, South Dakota.

Roy B. Johnson, Jerry M. Law, and Marshall E. Miller have been appointed Research Associates in the Department of Agricultural Economics, Louisiana State University.

Lawrence A. Jones, formerly with the Bureau of Agricultural Economics, has joined the staff of the National Bureau of Economic Research in Washington. Mr. Jones is currently engaged in a study of the economic geography of farm-mortgage distress.

Clifford H. Keirstead has accepted an appointment as Acting Assistant Agricultural Economist in the Maine Agricultural Experiment Station.

Harold Koeller transferred from the Division of Farm Management and Costs to the office of Foreign Agricultural Relations in Washington in February. He had been stationed at the University of Illinois to work on a cooperative farm management research project in southern Illinois.

R. L. Kohls, University of Missouri has resigned effective June 30 to accept an appointment in the Department of Agricultural Economics at Purdue University.

Baldur H. Kristjanson has been appointed Assistant Professor of Agricultural Economics at North Dakota Agricultural College. He will teach courses in the field of Land Economics and General Agricultural Economics, and will continue to conduct Experiment Station research.

J. N. Lewis, Agricultural Economist of the Economics Division, Dominion of Canada, Department of Agriculture returned to his position with the Division April 15. Mr. Lewis had been on loan to the Combined Food Board and since 1946 to the International Emergency Food Council in Washington.

Harlow Halvorson, Instructor at the University of Minnesota has accepted a position as Assistant Professor of Agricultural Economics at the University of Wisconsin. Professor Halvorson is teaching the courses in "Prices" and is engaged in research.

C. H. Hammar for many years a Professor in the Department of Agricultural Economics, University of Missouri, resigned effective January 31, 1948 to continue his work with the Food and Agriculture Branch of the American Occupation Forces in Germany.

Charles M. Hardin of the University of Chicago will take leave from his post during the spring quarter to become consultant to the Tennessee Valley Authority on agricultural programs and policy.

Scott Hathorn, Jr., has accepted a marketing research position with the Department of Agricultural Economics, University of Arizona.

Tyler F. Haygood has been appointed in charge of the tax work in the Bureau of Agricultural Economics. Dr. Haygood has been with the Bureau since 1942, coming to the Department from West Virginia University where he was on the teaching staff. Dr. Haygood has also taught at several other universities, including the University of Wisconsin where he received his Ph.D.

Albert Hermie, formerly with the Navy Department, has joined the staff of the Bureau of Agricultural Economics.

C. R. Hoglund, Associate Professor of Agricultural Economics at South Dakota State College, has accepted a cooperative appointment with the Bureau of Agricultural Economics and the Farm Management Department of Michigan State College with headquarters at East Lansing, Michigan. Full time will be devoted to research in the field of cost reduction in dairying.

Donald C. Horton of the Bureau of Agricultural Economics is giving a course in International Economics at American University.

J. C. Maxwell, Agricultural Economist of the Dominion of Canada Department of Agriculture located at the University of British Columbia has resigned his position to enter the commercial field.

Agricultural Economists of the Economics Division, Dominion of Canada Department of Agriculture taking graduate work include: E. P. Reid, University of Wisconsin; G. P. Boucher, University of Minnesota; Frank Shefrin, University of Chicago; W. C. Way, University of Illinois.

A. E. Richards, Principal Economist, Economics Division, Department of Agriculture, Ottawa, Canada has returned to his duties with the Division after spending a year with the Canadian delegation to the meetings at Geneva and Havana in connection with the International Trade Charter and the negotiation of trade treaties.

Harold M. Riley has been appointed Instructor in Agricultural Economics at Kansas State College to assist in the regional study of locker plants and home freezer units. This is a cooperative appointment between the Bureau of Agricultural Economics and the Kansas Agricultural Experiment Station whereby Mr. Riley will spend approximately a third of his time in Kansas and the other two-thirds in the eight other states participating in the regional study.

Tom C. M. Robinson, Agricultural Statistician in the Bureau of Agricultural Economics, was sent to the Middle East area in January at the re-

quest of the Food and Agriculture Organization of the United Nations to conduct a short course in agricultural statistics for the benefit of representatives of the governments of the Middle East countries. It was first planned to hold this school in Cairo, but conditions made it desirable to hold it in Bagdad, Iraq. Mr. Robinson expects to complete the instruction work early in May when he will return to the United States.

Anthony S. Rojko, after two years of graduate work at the University of Chicago, has returned to the University of Connecticut to carry on dairy research for the Division of Marketing and Transportation Research, BAE.

A. Peter Ruderman, Assistant Professor of Agricultural Economics at South Dakota State College has accepted an appointment as Assistant Professor of marketing and statistics at the School of Business Administration, Montana State University, Missoula, Montana.

Sargent Russell has been appointed Instructor in Agricultural Economics at the University of Massachusetts.

Karl Shoemaker resigned his position at Kansas State College to accept a position as Associate Professor of Agricultural Economics at the University of Wisconsin. Professor Shoemaker will devote his time to marketing extension activities.

Mildred B. Smith, formerly a research assistant on the New England Dairy Farm Management Research Project at Harvard University, has been appointed Assistant Professor of Agricultural Economics at the University of Connecticut to work on a consumer education project under the Research and Marketing Act of 1946.

George Soule, formerly with the Bureau of Agricultural Economics, is now associated with DuPont de Nemours & Co. at Wilmington. Mr. Soule is doing agricultural publicity work.

Felix E. Stanley has been promoted from Research Associate to Assistant Professor of Agricultural Economics at Louisiana State University.

William G. Sullivan, formerly Chief of Milk Regulations on the staff of the Connecticut Milk Administrator, has joined the Dairy Branch of the Production and Marketing Administration in Washington.

Frederick R. Taylor has been appointed an instructor in the Division of Agricultural Economics at the University of Minnesota.

William N. Thompson of the Department of Agricultural Economics, University of Illinois, has been on leave for the academic year to pursue his graduate program at the University of Chicago as a Farm Foundation Fellow.

A. H. Turner, Director of Economic Research, Department of Cooperation and Cooperative Development, Regina, Saskatchewan, Canada is on leave of absence to take graduate work at Cornell University.

James W. Van Winkle has taken leave of absence from his teaching duties at Montana State College to continue graduate work at the University of Colorado.

Thomas M. Venables has joined the Department of Agricultural Economics, Purdue University as Agricultural Sociologist, half extension and half research. He recently completed the requirements for his doctorate at Purdue University.

Silas B. Weeks, formerly State Director of the Farm Security Administration in Connecticut, has accepted an appointment with the Division of Farm Management and Costs, Bureau of Agricultural Economics. Mr. Weeks will be stationed temporarily at the University of Connecticut.

E. A. Willson became Associate Professor of Agricultural Economics and Rural Sociology at Montana State College at the beginning of the spring quarter, 1947. Professor Willson had previously been in FAO in Central Europe and for several years a Relief Administrator in North Dakota.

E. J. Working, Professor of Agricultural Economics, University of Illinois, is on a sabbatical leave during the second semester to make a study of the relation of industrial wage rates to agricultural welfare.

The 1948 annual meeting of the New England Research Council was held at the Littauer Center of Public Administration of Harvard University on April 15-16. Subjects receiving special attention were developments under the Agricultural and Marketing Research Act of 1946, research in consumer demand and consumer preference, developments in cooperative marketing in New England and research problems related thereto.

The University of Alberta invites applications for the position of Lecturer in Agricultural Economics and Farm Management; duties to commence September 1, 1948; initial salary \$2,400 to \$3,000 depending on qualifications.

Qualifications required include graduation in agriculture, and graduate work in Agricultural Economics or Farm Management. Preference will be given to applicants with experience in teaching and research in Farm Management.

Applications stating age, nationality, marital status and other relevant details; particulars of academic and technical qualifications and experience; names and addresses of persons to whom reference can be made; and accompanied by a recent photograph or snapshot, should reach the Dean of Arts and Science, University of Alberta, Edmonton, Canada, as soon as possible.

Irwin Hedges, in charge of the Dairy Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., has been granted a three-month leave of absence to serve in the Graduate School, U.S.D.A., as "dean" of the special R.M.A. Research Marketing School.

Walter L. Hodde, formerly warehouse manager and fieldman of the

Wyoming Cooperative Wool Marketing Association, Casper, Wyoming, has joined the staff of the Livestock and Wool Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Marketing Specialist to work on problems of cooperative wool marketing and processing.

Joseph G. Knapp, formerly Principal Agricultural Economist, in charge of the Purchasing Section, Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., has been appointed Associate Chief for this Division.

Oscar R. LeBeau, formerly with the Direct Distribution Branch of Production and Marketing Administration, U.S.D.A., has joined the staff of the Fruit and Vegetable Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Agricultural Economist to work on problems of fruit and vegetable marketing research and service work with farmer cooperatives.

Daniel H. McVey, formerly Agricultural Economist with the Bureau of Agricultural Economics and Farmers Home Administration of U.S.D.A., has joined the staff of the Cotton and Oilseeds Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Agricultural Economist to work on problems of cooperative cotton marketing associations and other cooperatives dealing with vegetable fats and oils.

Charles H. Meyer, formerly Agricultural Economist with the Grain and Feed Division of the Office of Price Administration, has joined the staff of the Grain Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Agricultural Economist to work on problems of the grain cooperatives.

Rushia K. Owens, formerly Statistician with the War Production Board, and Analyst with the National Housing Agency, has joined the staff of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Statistician to work on problems of marketing research.

Guy A. Peterson, Agricultural Economist, formerly with the Bureau of Agricultural Economics, Office of Price Administration, and the Poultry Branch of Production and Marketing Administration, U.S.D.A., has joined the staff of the Poultry Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Agricultural Economist to work on problems of cooperatives which handle eggs and poultry. Most of Mr. Peterson's work will be on projects under the Research and Marketing Act.

Anne Wheeler, formerly editor of publications on agricultural cooperation, attached to the Division of Information and Extension, Farm Credit Administration, has joined the staff of the Livestock and Wool Section of the Cooperative Research and Service Division, Farm Credit Administration, U.S.D.A., as Assistant Agricultural Economist.

BOOKS CONTRIBUTED TO THE AMERICAN FARM ECONOMIC ASSOCIATION LIBRARY

MARCH 15, 1948

- Butz, E. L. *The Production Credit System for Farmers* (Washington, D. C., Brookings Institution, 1944), p. 104.
- Brunner, deS. Edmund and Lorge, Irving. *Rural Trends in Depression Years* (New York, Columbia University Press, 1937), pp. 387.
- Gile, B. M. *Research Publications, 1927 to 1935* (Ph.D. Thesis, University of Minnesota; six research bulletins, University of Arkansas), pp. 441.
- Duddy, Edward A. *Agriculture in the Chicago Region* (Chicago, University of Chicago Press, 1929), pp. 158.
- Duddy, Edward A. *The Cold-Storage Industry in the United States* (Chicago, University of Chicago Press, 1929), pp. 110.
- Johnson, Sherman E. and Associates. *Managing A Farm* (New York, D. Van Nostrand Company, 1946), pp. 365.
- Knapp, Joseph G. *The Hard Winter Wheat Pools* (Chicago, University of Chicago Press, 1933), pp. 180.
- Murray, William G. *Agricultural Finance* (Ames, Iowa, Iowa State College Press, 1946), pp. 328.
- Murray, William G. *Farm Appraisal* (Ames, Iowa, Iowa State College Press, 1947), pp. 278.
- Nourse, Edwin G. *American Agriculture and the European Market* (New York, McGraw-Hill Book Company, 1924), pp. 333.
- Nourse, Edwin G. *Marketing Agreements under the AAA* (Washington, D. C., Brookings Institution, 1935), pp. 446.
- Nourse, Edwin G. *Price Making in a Democracy* (Washington, D. C., Brookings Institution, 1944), pp. 541.
- Nourse, Edwin G. and Associates. *America's Capacity to Produce* (Washington, D. C., Brookings Institution, 1934), pp. 608.
- Nourse, Edwin G., Davis, Joseph S. and Black, John D. *Three Years of the Agricultural Adjustment Administration* (Washington, D. C., Brookings Institution, 1937), pp. 600.
- Nourse, Edwin G., and Drury, Horace B. *Industrial Price Policies and Economic Progress* (Washington, D. C., Brookings Institution, 1938), pp. 314.
- Nourse, Edwin G., and Knapp, Joseph G. *The Cooperative Marketing of Livestock* (Washington, D. C., Brookings Institution, 1931), pp. 486.
- Pearson, Frank A., and Harper, Floyd A. *The World's Hunger* (Ithaca, New York, Cornell University Press, 1945), pp. 90.
- Robertson, Lynn S., and Woods, Ralph H. *Farm Business Management* (Chicago, Lippincott Company, 1946), pp. 546.
- Shepherd, Geoffrey S. *Agricultural Price Analysis* (Ames, Iowa, Iowa State College Press, 1947), pp. 231.
- Shepherd, Geoffrey S. *Agricultural Price Policy* (Ames, Iowa, Iowa State College Press, 1947), pp. 440.
- Shepherd, Geoffrey S. *Marketing Farm Products* (Ames, Iowa, Iowa State College Press, 1946), pp. 445.

Valgren, Victor N. *Farmers' Mutual Fire Insurance in the United States*, (Chicago, University of Chicago Press, 1924), pp. 186.
American Cooperation. (Washington, D. C., American Institute of Cooperation, 1930, 1931, 1933, 1934, 1936, 1939, 1941, 1942-1945, 1946.)

In addition to the above 88 unbound publications in the form of bulletins and reprints have been contributed to the library by authors.

MINUTES OF MEETING OF EXECUTIVE COMMITTEE OF AMERICAN FARM ECONOMIC ASSOCIATION

STEVENS HOTEL, CHICAGO, ILLINOIS

FEBRUARY 7, 1948

10:00 A.M.-4:30 P.M.

Present: W. G. Murray, Asher Hobson, F. V. Waugh, D. B. DeLoach, C. V. Parker, E. L. Butz, Harold Hedges, W. C. Waite, L. J. Norton.

It was reported that the annual reports of the President, Secretary-Treasurer, and the Editor, and the reports of the auditors and of the tellers will be published in the February issue of the *Journal*.

The communication from L. D. Colburn, a member of the Association, concerning a joint marketing committee with the American Marketing Association was discussed. The President was advised to follow up on the matter.

The report of the Investment Committee was presented and accepted. The following resolution was passed:

"RESOLVED, that the Secretary-Treasurer, who is also chairman of the Investment Policy Committee, be and is hereby authorized and empowered for, and in the name and on behalf of this Association to take any and all such steps, and to do any and all such things as may be necessary, required, and appropriate for, or in connection with, the purchase, acquisition, acceptance, handling, pledging, sale or other disposition of stocks, bonds, and other securities belonging to the Association or pertaining to its business, including the execution and delivery for and in the name and on behalf of this Association, of any and all endorsements, transfers, and assignments of certificates of stocks, bonds, or other securities standing in the name of this Association, either for the purpose of sale or transfer, and all such other steps and action as may be necessary or proper in connection therewith."

The new contract with the George Banta Publishing Company, Menasha Wisconsin, for printing the *Journal* was discussed and approved.

After preliminary discussion by Hobson concerning the proposed contract with the Blakiston Press of Philadelphia, Pennsylvania, for printing a book of readings dealing with agricultural policy, Mr. T. A. Phillips, executive vice-president of the Blakiston Company, met with the committee. He agreed to certain suggested changes in the proposed contract but did not agree to others. Following Mr. Phillips' departure, the President was authorized to conclude arrangements concerning this matter on the basis of previous discussion. On the vote, Norton voted in the negative on the proposal. A suggestion was made that the President determine whether the Iowa State College Press would be interested in a contract to publish the proposed book.

An appropriation, not to exceed \$250, to the Editor-in-Chief of the proposed book was approved.

The Secretary-Treasurer was authorized to accept and transmit dues for the International Conference of Agricultural Economists to the treasurer of the Conference.

The Secretary-Treasurer reported that the increased cost of publishing the *Journal* would probably cause the Association to operate at a deficit in 1948. He suggested that the dues be raised to cover the increased costs of operating the Association. He stated that, in view of the increased load of work consequent on increased membership, the Association should provide a full-time clerk for handling the routine business of this office. He stated that he would not be a candidate for the office in 1948-49 because of pressure of other work.

The President was authorized to appoint a committee from the Executive Committee to study the problems involved in Association operation and to report prior to the next annual meeting of the Association. The President appointed the following committee: F. V. Waugh, chairman, L. J. Norton, E. L. Butz.

Warren C. Waite was elected Editor of the *Journal of Farm Economics* for the ensuing year. He advised that he would accept but did not care to serve beyond this year. It was decided that, in spite of increased cost, the Association should proceed to publish the usual issues of the *Journal* for the balance of this fiscal year. The Editor reported that the printer would prefer to have the proceedings issue published as a supplement to the February issue rather than to the November issue.

Warren C. Waite was elected as the nominee for a director of the National Bureau of Economic Research to represent the American Farm Economic Association. The term of the directorship is five years beginning March 1948.

The annual meeting was discussed. In accordance with the wishes of those present at the 1947 meeting, it was agreed to hold the 1948 meeting at Green Lake, Wisconsin, from Monday noon, September 13, to Thursday noon, September 16. The President reported that he was entering into negotiations with the American Economic Association and the American Statistical Association for joint sessions with these associations at the meetings to be held in Cleveland, Ohio, during the Christmas holidays in 1948.

Possible meeting places in 1949 were discussed. The opinion was expressed that a majority of the membership preferred summer meetings. The possibility of college campuses was raised; Michigan State College and Ontario Agricultural College were suggested. Mr. DeLoach, President of the Western Farm Economic Association, cordially invited the AFEA to meet in the West. The competition with tourists for space was noted. The officers were instructed to investigate the possibilities of the Ontario Agricultural College of Guelph. Mr. Parker, President of the Canadian Agricultural Economics Society, indicated that the Canadian association would be honored to have the meeting in Canada and would cooperate in

such a meeting. He also indicated that their Society was very pleased to have the joint membership effectuated.

Selection of the outstanding article of the year in the *Journal of Farm Economics* was discussed. The lack of time for consideration of articles appearing in the November issue was noted. It was decided that as a general policy the year would end on June 30 with the May issue of the *Journal* as the last one in the year. Announcement of the winner would be made either at the following summer or winter meeting of the Association. The 1947 winner, selected on the old basis, will be announced at the annual meeting at Green Lake, Wisconsin. The next contest in order to transfer to the new basis, will cover the period from January 1, 1948, to June 30, 1949.

It was reported that the WFEA would meet in 1948 on June 23-25 at Davis, California, and that the CAES would meet on June 21-24.

Meeting adjourned.

Respectfully submitted,
L. J. NORTON, *Secretary-Treasurer*
W. G. MURRAY, *President*

ANNUAL MEETING

American Farm Economic Association

September 13 to 16 Inclusive, 1948

at

The Northern Baptist Assembly

Green Lake, Wisconsin